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MARCH 1987 VOL. 9 NO. 3
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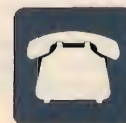
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AMERICAN SURVIVAL GUIDE

VOLUME 9, NUMBER 3 MARCH 1987

THE MAGAZINE FOR SAFER LIVING

COVER:
Ruger's new Mini Thirty semi-automatic rifle in 7.62 x 39mm (the AK-47 round), is an alternative to the high velocity caliber of the Ruger Ranch Rifle. The Mini Thirty is ideal for hunting deer and other medium-size game (Photo by Jim Benson).



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Special Purpose blaster for hunting/survival.

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RIGHT—Ready Reserve's soup and stew blend and stroganoff in dehydrated and cooked forms.

BELOW—Dehydrated and cooked onions, beans, celery and salad blend.

BELOW RIGHT — Fruit cocktail.





LEFT—Vegetable noodle soup.

BELOW—Here are some of the Ready Reserve foods in packages with the cookbook for preparing them to eat.



paring the food. There are fruit drinks, scrambled eggs, rolled oats, milk, biscuits, fruits, stews, grains, potatoes, legumes, butter, onions, meats and poultry, carrots, celery, peanut butter, cabbage, chocolate pudding and much, much more too numerous to mention here, including dishes such as stroganoff and Spanish rice.

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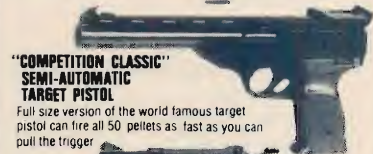
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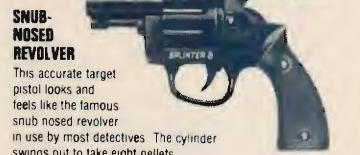
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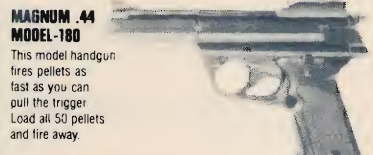
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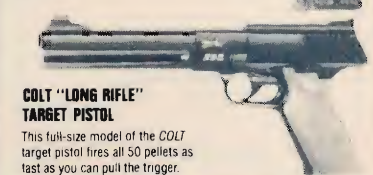
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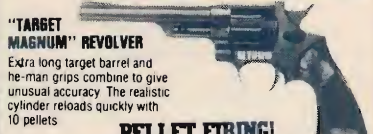
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Thoughts on the media . . .

READING/watching/listening about the latest allegations, recriminations, investigations and insinuations in "The Iran-Contra Arms Scandal," "Contragate," I'm as confused as ever about just what happened, who did what and how important it all is.

Before this supposedly massive scandal broke late last year, the press was full of "coverage" of the American hostages in Lebanon. Day after day, it seemed, you were watching on television pleas from the hostages' families for the government to do something, video tapes of hostage pleas for President Reagan to do something, and speculation about what was going to happen to the hostages.

Then the "scandal" breaks wide open. According to the media, it's the biggest thing since Watergate. Yes, it seems the government finally did something to get the hostages back. In fact two of them were released before all the hullabaloo in the press about the deal for the hostages' release.

What was the deal? Well, apparently, our government was offering arms, badly needed by the Iranian government in its long, costly war with Iraq, in exchange for Iranian pressure on the pro-Iranian kidnappers in Lebanon to release our hostages. And it was apparently working, this deal, to get the hostages released and, perhaps, to improve relations with Iran with the goal of establishing peace and stability in the region.

That's the way I understand it anyway. According to the media, our government negotiated with "the terrorist government of Iran" and violated numerous laws in the process, though this is not clear to me at this writing.

Yes, it's quite a scandal, according to the media, according to the latest polls which show eroding support for the President, which show most Americans believe he's lying about what he knew about "The Iran-Contra Arms Scandal," which show etc., etc., etc.

The whole matter, for me, is more indicative of what our news media is and how

it operates than of what our government did or did not do regarding its efforts to gain the hostages' release.

Years of watching the media and working within it have led me to conclude that much of the nation's large, influential news organizations are controlled by people caught up in a cult of elitism and snobbery. These are people who are often from the upper middle and upper classes socioeconomically. They are people who have led privileged, sheltered lives and who attended the "best" schools where they learned how the world should be and how our government should be run. Their politics are idealistic and decidedly liberal-socialist. They make sure that those who follow them into these organizations are from the same or similar backgrounds.

While I was taught in journalism school that newsmen are supposed to strive for "objectivity" in their "news" reporting, I've long since concluded that there is no such thing as "objective reporting," and that those who control and staff news organizations all too often use them to propagandize for their pet political causes, causes which tend to be at odds with those of conservatives like President Reagan.

It's not surprising to me, then, to see the media working itself into such a frenzy about "Contragate." What an opportunity to discredit the conservative administration and its aid to the Nicaraguan contra rebels. Yes, I think there are many in our illustrious media who are gleefully hoping that "The Iran-Contra Arms Scandal" will lead to the effective end of the conservative Reagan administration and its conservative policies.

And what about the remaining American hostages and the hostages of other nations being held in Lebanon? You hardly hear a thing about them in the "news" now. Well, who cares really? While the hostages' plight was big news only yesterday, the press has a much bigger fish to catch today, so what difference does it make about what happens to our hostages? "Contragate" is much bigger theater—*Jim Benson*.

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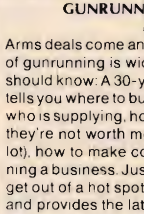
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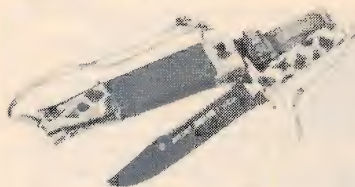
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SURVIVAL LINE

California earthquake peril, home schooling, Soviets blame U.S. for AIDS epidemic, British Labor Party's anti-nuclear stand, NATO report predicts more sophisticated terrorist attacks . . .

A NEW study by California seismologists indicates that the state may face an even greater earthquake danger, along a number of lesser known geologic faults, than that posed by the well known San Andreas fault.

The study focuses on the 50-mile-long Newport-Inglewood fault and the Hayward fault, a 62-mile-long fault line that cuts across San Francisco Bay. According to the study an earthquake in the 7.0 range on the Richter scale along either of these faults would "constitute one of the most devastating natural disasters that could conceivably strike this nation." The report estimates that such a quake could result in from 1,500 to 4,500 deaths and up to 100,000 injuries, depending on the time and day of occurrence. Other likely effects, according to the report, would include major damage to roadways, bridges, airport runways, homes, medical facilities, office buildings, etc. Major disruption of communications, transportation, medical services, water and electric services and other vital systems could also be expected.

Home Schooling Notes—More than 1 million students in the U.S. are now attending "school" at home. In the last five years the number of children being taught at home by parents has more than tripled and estimates are that by 1991 there will be more than 2 million children attending school in their own homes.

Parent support group networks such as the Florida Parent Educators group in Gainesville, Florida, have been forming across the country in an effort to help parents interested in home schooling.

Among the reasons for the boom in home schooling are a growing desire by many parents to take more responsibility in the education of their children, a belief by many parents that public schools do not teach or emphasize values and ethics which parents consider important, and the fear of exposing children to drugs, violence, and other influences which can be found in schools today.

Quick Looks—International Relations

—The new \$192 million U.S. embassy complex in Moscow is so riddled with electronic listening devices that it may have to be abandoned before it is even occupied. Almost all of the "bugs" have been found in Soviet made prefabricated construction

materials. Recent U.S. inspections revealed the presence of the devices. According to Florida Congressman Dan Mica (D), the entire complex may have to be destroyed and a new embassy complex started from scratch.

The Soviets have begun a campaign of blaming the AIDS crises on the U.S. Recent reports carried in the Soviet media assert that the AIDS virus is actually a U.S. developed biological weapon.

If the British Labor Party should come to power in the General Elections (which must be held by June 1988), the U.S. stands to lose the support of one of its strongest allies. The Labor Party, which polls show is gaining in strength, has announced that should it win in the general elections, it will expell U.S. nuclear forces from Britain, end British cooperation in the Strategic Defense Initiative program, and work to destroy Britain's own nuclear forces. Further, the Labor Party has stated that it would not allow the U.S. to use Britain as a base for launching anti-terrorist actions similar to the recent air strikes on Libya. Britain was the only U.S. ally to allow American bombers based on its soil to be used in those attacks. The Labor Party has also accused the U.S. of sponsoring terrorism in its support of the anti-communist contras in Nicaragua.

NATO Terrorism Report—A new report prepared for the 16-member states of the NATO alliance says that terrorist groups will probably begin using "more sophisticated" methods of attack in the near future. The report states that while bombings and assassinations will continue to be favored tactics of terrorist groups the Western nations must be prepared for attacks which employ "more sophisticated means of sabotage, such as either damaging high-technology computer networks or poisoning water or food supplies and household products."

The study reports that from 1973 to 1983 there were 5,175 terrorist attacks worldwide in which 3,689 people died and almost 8,000 people were wounded.

According to the U.S. government, in the first half of 1986 there were 488 terrorist incidents worldwide. Those incidents were responsible for 422 deaths and almost 1,000 injuries. ●

Don't Be The Last To Know

When a nuclear incident occurs, don't you want to know immediately if you and your family are in danger from radiation contamination? Our public officials are there to protect the "PUBLIC". Who is going to protect you? Advance warning of radioactive contamination is vital to give you the edge in leading your family to safety, be it to a shelter or evacuation. SURVIVOR radiation warning receiver will alert you when a significant increase in radiation occurs due to a nuclear war or a major "peace time" disaster. You need to be aware of the many potential life threatening problems so you may react immediately to protect your safety and the safety of your family. SURVIVOR radiation monitoring receiver, plugged into any 110 volt outlet will notify you immediately of any significant increase in the radiation level. SURVIVOR detects Alpha, Beta, Gamma, X-ray, and high concentrated levels of Radon gas. Like it or not, we are living in the nuclear age. The question of right or wrong will be the topic for years to come. However, you DO need to know of a significant increase of radiation around your home, office, or business NOW. Our public officials are out to protect us and warn us of problems, but prompt notification sometimes just isn't possible. As we move further into the nuclear age, radioactive accidents and contamination are likely to occur. If it affects you, you'll want to know at the earliest possible moment so you can lead your family to safety. Often, the local citizen is the last to know. If this concerns you, then you need SURVIVOR. After all, it may be your only alternative to not knowing.

Possible Sources of Radioactive Contamination

The most commonly publicized sources are commercial nuclear reactors. The threat of a melt down or partial melt-down such as Chernobyl or Three Mile Island is an ever-growing concern. There are over 100 commercial reactors in the United States with over 25 additional on order. Plants that process radioactive ore could be common sources of radiation. Escaping ore dust or fumes leaking from filter systems and smoke stacks are reported constantly. Major highways and rail lines used to transport radioactive waste to a dump or storage site are possible high risk areas. The number of truck accidents and train derailments are on an ever-increasing occurrence. The list goes on and on, increasing weekly.

Your Family Security

SURVIVOR radiation warning receiver will give you immediate notice of any significant increase in the radiation level of your home or office. Prompt warning of a potential radiation problem will allow YOU to make the decision to evacuate the area before a higher level of radiation occurs. Early knowledge of a radiological emergency can allow you the time to beat

the traffic and avoid the panic. The sooner you are aware of the problem, the sooner you can move your family to safety. In the finance world, the saying is, "time is money". In this world, "time is life". Don't forget to take SURVIVOR with you for added protection.

Ease of Operation

SURVIVOR is designed to be plugged into any 110 volt outlet. A green LED will tell you it is looking for an increase in the radiation level. Should you lose 110 volt power, a rechargeable battery will take over for continued protection. At that time the green LED will go out and a red flickering LED will tell you of the 110 volt power failure. To test the alarm, simply push the test button on the top.

Nicad Battery Support (for portable operation)

When unplugged from a 110 volt outlet, SURVIVOR can be used as a portable detector. Rechargeable batteries allow SURVIVOR to work up to 24 hours after it is disconnected. A switch on the

rear of the unit allows SURVIVOR to be used in the click mode to warn of hotter radiation areas, therefore allowing you to move to safer conditions.

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There is only one way to get SURVIVOR — from the factory. When you talk to us, you talk to the factory. You get no second hand information; no middle man. SURVIVOR is made in Cincinnati by people who care and want to do a job but one way — the best.

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This survival kit comes in a sturdy nylon camouflage musette bag with wrap-around carrying handles and an adjustable shoulder strap.

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Or \$1.00 for a catalog of our complete line of survival gear.

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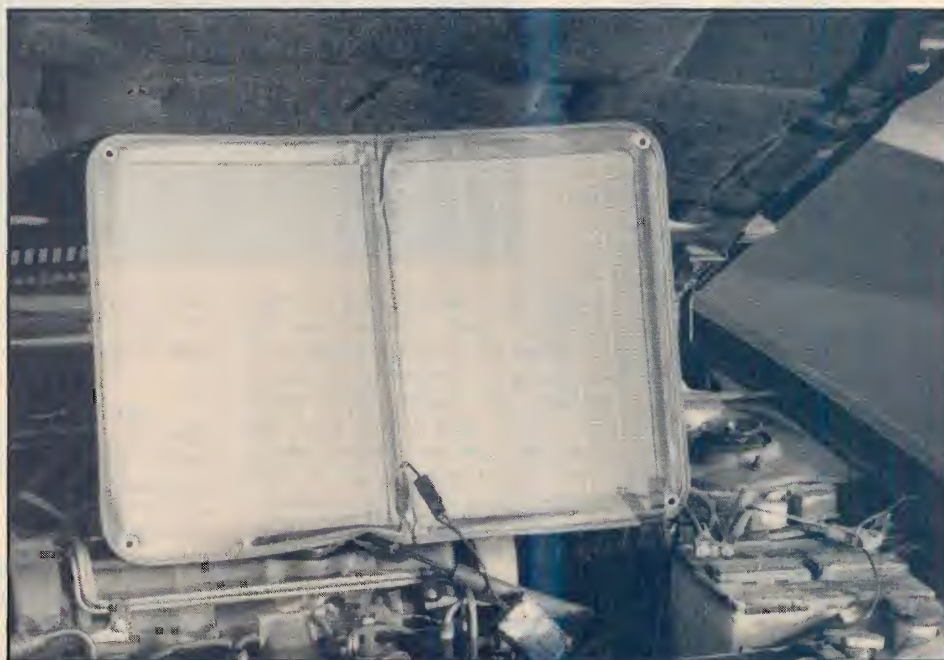


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THE SUN PAL portable solar power generators are lightweight, rugged, portable power supplies, producing, depending on the model, 12- or 6-volt direct current electricity for outdoor uses with 2 to 10 watts of power.

The ASG staff tested the SUN PAL 110, the most powerful of the three models available. It worked perfectly. Measuring 18-1/4 by 12-1/2 by 3/8 inches when folded, the SUN PAL 110 produces 10 watts of power on a bright, clear day. Its extra generating power allows it to function even on partly cloudy days.

The SP 110, like its next most powerful sibling, the SP 105, is designed to charge marine, recreational vehicle and automobile batteries. Recharging is faster with the SP 110 because of its larger capacity—10 watts as compared with 5 watts for the SP 105.

Accessories include a battery charge controller with male cigarette lighter plug output and female cigarette lighter plug



with battery clips (not for marine environments), marine battery charge cable, shoulder strap. The unit comes with 12-, 9- and 6-volt current converter with fittings.

Suggested price for the SP 110 is \$210; \$105 for the SP 105 (13-1/2 by 9-7/8 by 3/8 inches); \$70 for the SP 102 (9-7/8 by 6-1/8 by 3/8 inches). For more information contact Sovonics Solar Systems, Dept. ASG, 1100 West Maple Road, Troy, MI 48064; (313) 362-4170. ●

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Survival expert Roy Johnson calls it "the most complete manual on survival architecture."



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- Survival ratings of areas in the U.S. and Canada—where is the best place to live if economic troubles or social unrest reappear.

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executives and law enforcement agents desiring a higher level of readiness, balanced with comfort and convenience, than previously possible. They specialize in designing and producing concealment purses and cases. All designs emphasize quick-access, deep concealment, and convenience. *The defense weapon is instantly accessible via a hidden opening, no flaps or zipper to fumble with. The weapon remains concealed even when the bag or case is zipped open.* These limited production goods are marketed directly from the designer-manufacturer, the promotion has been kept modest and the savings passed on to the clients. These original designs are hand-assembled, using the finest nude finish cowhide obtainable. They are stitched with nylon parachute thread and all straps utilize solid brass buckles. We invite the user to compare them with non-tactical articles, regardless of price. All Guardian Leather products carry a limited one-year warranty against defects of materials and workmanship. Guardian offers a complete line of shoulder bags, portfolios, briefcases and other holster cases. These include the Policewoman Shoulder-Holsterbag series, the Soft Portfolio series, the U.S.A. (Ultimate Speed-of-Access) cases, and the Executive Belting Leather briefcase. For more information contact Guardian Leather, Inc., Dept. ASG, 624 Galahad Road, Plymouth Meeting, PA 19462; (215) 825-5393.

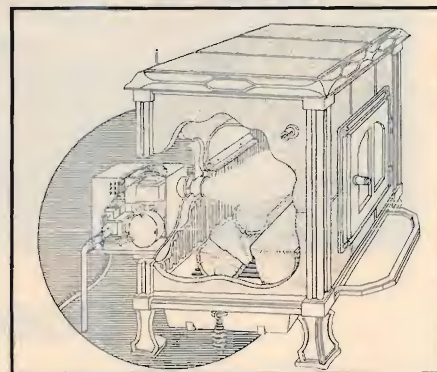
Wrist Band Cartridge Holder



An elastic wrist band cartridge holder that puts six rifle or pistol cartridges within easy reach of the shooter is offered by Michaels of Oregon, maker of "Uncle Mike's" shooting accessories. Ideal for big game and varmint hunters who shoot single-shot rifles, the new Sidekick Wrist Band Cartridge Holder is attached by a large segment of Velcro fastener. It can be worn by most shooters with or without a shirt or jacket. Its six shell loops will hold either rifle or handgun ammunition. Available in black only, the shell holder carries a suggested retail price of \$7.95. Like other "Uncle Mike's" products, it is sold only through gun stores and sporting goods retailers. Send \$1.00 for a 32-page color

catalog and price list to Michaels of Oregon, Dept. ASG, P.O. Box 13010, Portland, OR 97213.

Dual Fuel Stove



Set it and forget it. That's the beauty of central heat—and the reason most homeowners who heat with wood pay extra money for a back-up system that burns gas, oil or electricity. But now there's an alternative. A single, attractive free-standing unit for single room or total house heat that offers both the economy of wood and the convenience and reliability of gas. HearthStone unveiled its new Gemini System Dual Fuel Stove during the company's annual dealer meeting last June. Patrick Garahan, HearthStone's Executive Vice-president, told dealers and the press that the new stove had just passed six months of rigorous testing by the American Gas Association, clearing the way for an ambitious sales and marketing campaign aimed at "changing the way the world heats with wood." Phil Tonks, HearthStone's Director of Engineering, put Gemini through its paces, explaining that Gemini functions either as a woodstove or as a gas heater. Equally important—it takes all the trouble out of heating with wood. As HearthStone dealers watched, Tonks loaded the HearthStone Gemini System stove with 18-inch logs, and ignited the wood—without matches, paper or kindling—by simply setting the temperature on a standard wall thermostat. "The gas stays on just long enough to get a good fire going," he explained. Once the wood is ignited, the Gemini woodstove heats just like any other HearthStone soapstone stove—until the fire dies down. "Then," Tonks said, "you can re-load the stove with wood, or, do nothing. When the wood burns out, the gas comes back on and maintains a comfortable room temperature just like any other thermostat-controlled home heating system." The Gemini Unit, a gas power burner that attaches to the rear of a HearthStone woodstove, burns either LP or natural gas. By the end of the summer, Gemini will be available on HearthStone's

popular mid-size HearthStone II, dealers were told. "If you're building a new home—up to 10,000 cubic feet, with reasonable insulation, a HearthStone Gemini II may be the only heating system you'll need," Tonks explained. Garahan described the rigorous testing process required by the American Gas Association, which certifies gas appliances for compliance with national safety, durability and performance standards. Safety features incorporated into the design of the Gemini System include automatic gas shut-off in case of flue blockage, power loss, flame loss or overheating. In addition to laboratory testing, HearthStone sponsored extensive field-testing by its dealers, many of whom were on hand for the annual dealer meeting. For more information contact HearthStone, Dept. ASG, Hearthstone Way, Morrisville, VT 05661; (802) 888-4586.

Tropicscreen



Epco Design, manufacturer of SleepScreen and SleepScreen II, has added a third model to the company's line of lightweight net tents that keep out mosquitoes. The newest design, called Tropicscreen, is a free-standing luna-style tent that is large enough to completely enclose two people sleeping on the ground, or one person sleeping on a cot. Like the popular SleepScreen and SleepScreen II, Tropicscreen is a low-cost and low-weight solution to the problem of persistent mosquitoes, gnats, and no-see-ums, which are dangerous to health as well as annoying. The unique tent is constructed of no-see-um netting and shock-corded fiberglass poles, and has no floor or door. To enter, you just lift up the netting by convenient handles (which can also serve as tie-down loops) and crawl inside. Since no portion of the netting touches the sleeper, Tropicscreen is especially valuable in hot climates, where the slightest covering is uncomfortably hot and sticky. Tropicscreen allows any cooling breezes to pass right through the open mesh, and opens up the panorama of stars to view. Weighing a scant 37 ounces, Tropicscreen is valuable insurance for backpackers, cyclists, river runners, and other travelers liable to find themselves in buggy conditions. The tent rolls to a compact 21 inches by 4.5 inches diameter cylinder to fit its nylon carry sack; small enough to be

stowed in a pack or carry-on suitcase. TropicScreen sells for \$39.95 in outdoor specialty stores and major mail order companies such as Campmor and Recreational Equipment Inc. The price includes netting, shock-corded poles, and nylon carry sack.

R14 Skinner



Big game hunters have been waiting for a knife like Coleman/Western's new R14 Skinner. The forte of this classically styled skinner is its handle. The finger-grooved, checkered Krayton handle offers an extremely comfortable and safe grip. The very nature of skinning game puts a knife in a wet, slippery environment. This is where the R14 shines. Wet or dry, the rubber-like handle gives hunters a positive, sure grip as the knife is put through the paces. What's more, black Krayton is durable and attractive. The blade itself upholds Coleman/Western's long tradition of quality steel and fine craftsmanship in fixed-blade knives. Featuring a curved skinning design preferred by many hunters, the hollow ground stainless steel blade is 4 5/8 inches long. The knife comes in a rugged yet handsome black molded leather sheath. Another thing the R14 has going for it is an economical price. Suggested retail is \$17.95. And, like all Coleman/Western knives, it carries an exclusive 100-year warranty. For more information, contact Western Cutlery, Dept. ASG, 1800 Pike Road, Longmont, CO 80501.

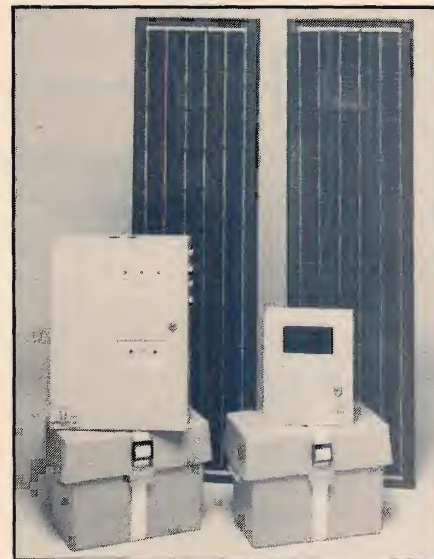
1987 Assault Rifle Case Line



A new line of assault rifle cases featuring a unique double padding process is now available through Schulz Industries, 16247

Minnesota Ave., Paramount, CA 90723; (213) 633-1081. The double padding process offers two layers of foam protection for a weapon if it is dropped or mishandled. Cases for such weapons as the AR-15, Uzi and Folding Stock are available in black or camouflage waterproof nylon. The company also features a special case for the AR-7 as well as an Assault Gear Transportation bag. A standard rifle case for shotguns and scoped rifles is also featured. All cases have full-length zippers and web carrying handles. Exterior storage pockets are available on each case. The assault rifle cases, as well as other weapons cases, are available nationally through dealers. To receive a full-color discount catalog send \$2 to Schultz Industries, Dept. ASG, 16247 Minnesota Ave., Paramount, CA 90723 ATT: Catalogs.

Sun Selector



The world's first commercially available, expendable, residential photovoltaic power system is being manufactured by Bobier Electronics, Inc., a West Virginia corporation. The system, known as Sun Selector, is the only commercially available system that will provide solar generated electricity to a home in standard AC form while using the utility company only as backup. The system is fully automatic, with no buttons, meters, knobs, or other "user" controls required. Systems may be installed with as few as two photovoltaic modules, are capable of whole house expansion. The unit will accept up to 120 amps of DC charge current, and is able to supply a 160 amp AC service to the home in either 110 VAC or 220 VAC or both. The system is patent pending. Inquiries may be made to: Bobier Electronics, Inc., Dept. ASG, P.O. Box 1545, 512-37th Street, Parkersburg, WV 26102. ●

Radios, Antennas:

Essentials Of Survival Communications

Sitting in a tornado shelter, or fallout shelter, your need for the latest news is compounded . . .

By Stephen W. Slate

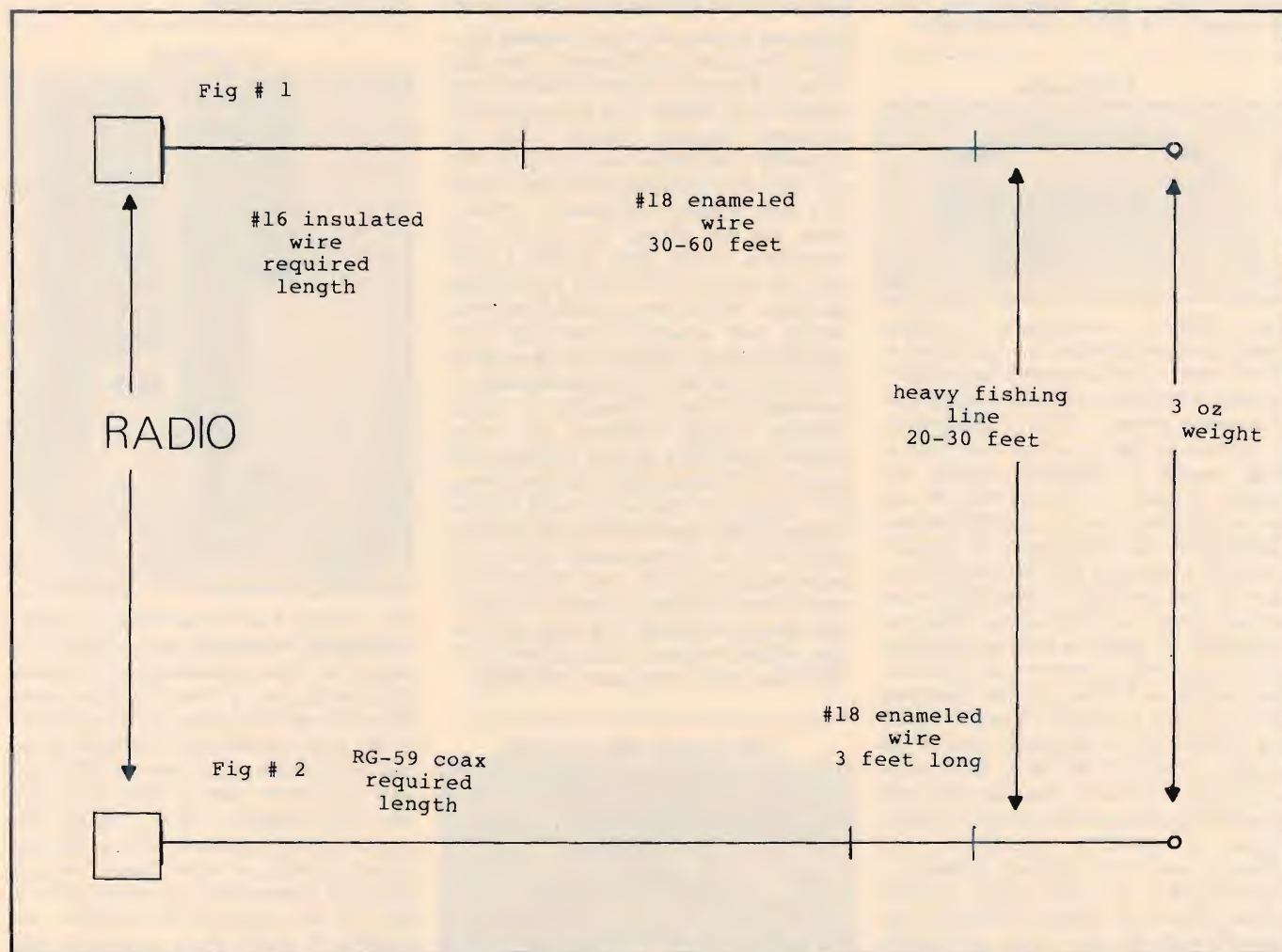


Figure 1 shows a "long wire" for shortwave and AM reception. Figure 2 shows a "long wire" for police and two-meter reception.

RADIO and TV stations spend millions of dollars every year to bring you the latest news and weather. They even go so far as to interrupt your favorite program with an update or late breaking story. Anyone

who has been cut off from news of the outside world will tell you the importance of insuring your communications link.

Sitting in a tornado shelter, or a fallout shelter, your need for the latest news is com-

pounded. Try to imagine several hours or days, without information on what was going on.

"I'm from the government, and I'm here to help you" may be one of the oldest lies in

the book, but at least they are trying in this instance. In every area of the U.S. the government has designated an emergency radio station. This station has been fitted out with emergency power and special protection from disaster.

These emergency broadcast stations are monitored by all the other radio and TV stations for emergency traffic. If an emergency exists, they broadcast the familiar tone alert. It is usually heard as a test of the Emergency Broadcast System. This test is performed once each month. Special receivers, equipped with tone decoders, turn on when this signal is transmitted. If it is not a test, you will be told which stations to tune to.

The second method the government will use to advise you of emergencies is the NOAA (National Oceanic and Atmospheric Administration) weather service stations. They, also, have a tone alert to turn on special receivers when an emergency exists.

Radio equipment for the survivalist needs to meet three criteria: ease of operation; operable on emergency power; protection from EMP (electromagnetic pulse).

Ease of operation is a must. A fancy receiver with 47 knobs may be fun and work great, but can your spouse or other members of your group operate it if you become disabled? Make sure you have an operation manual, with hook-up for emergency power, even if you have to write it yourself.

Emergency power may range from a backup generator to a battery in your radio. If your radio operates on both, all the better. Backup generators may fail or the batteries may run down. Most flashlight and radio type batteries will have a longer shelf life if kept cool. The crisper in your refrigerator is an excellent storage spot.

Electromagnetic pulse is a lightning-like charge generated by the detonation of a nuclear device. The major difference between EMP and lightning is the "rise time," or time it takes for the charge to build to maximum. The EMP builds to maximum about five times faster than lightning. This creates two problems for us. Normal lightning protection devices react too slowly to EMP, and the EMP generates higher voltages and current in surrounding objects.

While disconnecting your TV from the antenna and the wall outlet is usually sufficient protection during a lightning storm, you might have to completely shield it with a grounded metal cage for protection from EMP.

The EMP results from the release of millions of electrons at the instant of the nuclear explosion. These electrons, due to their negative charge, are attracted to anything with a charge less negative than they are. Their ultimate destination is the earth. The earth, or ground, is the only object large enough to absorb this amount of electrons. The problems with EMP result when it takes "shortcuts" to ground. These shortcuts may be any conductor of electricity:

power lines, telephone lines, or your radio antennas. The best compromise seems to be grounding your antenna when it is not being used, and using lightning protection devices when possible.

As the EMP causes most of its damage from induction, it becomes less of a problem above 100 MHz or about the FM broadcast band.

Receiving Equipment—The first radio a survivalist needs is a portable AM pocket type radio. They are low in cost and work well for reception of local stations. The ideal storage method is sealing it in a surplus "ammo" can and storing it in your shelter. The ammo can should give you all the protection needed against EMP.

The number two item on your list to obtain should be a weather radio with an automatic "on" feature. Several companies import or manufacture these. I have used the "Weatherradio Alert" #12-140 from Radio Shack with excellent results.

The Number three radio you require should be a scanner type, capable of receiving the local police and emergency services. Again, the more you know about what is going on in the "outside world" the better off you will be.

If you only plan on listening you can make an antenna out of a piece of wire. Hang it as high as possible, and run one end of it into your shelter. NEVER leave it hooked to your radio when you are not using it, hook it to a good ground rod inside your shelter. Weather radios and scanners can be hooked to your antenna by wrapping the end of your outside antenna around the antenna on the radio. AM type radios only need the antenna wire wrapped around the case two or three times, no electrical connection is required.

The next phase of your communications system includes radios that are capable of transmitting signals. They require a special antenna system outside your shelter. Remember, transmitting will enable you to be heard, but also to be tracked down. There is no perfect protection from radio direction finding. The fact that you put a signal on the air will tell someone you are there even if your transmission is so short they do not have time to track you down. "They" may only be the local sheriff who wants to distribute your stored foods to the "needy" who did not plan ahead. Think who may be listening, before you transmit.

Information on antennas for transmitting is available at your library or from the American Radio Relay League, Newington, CT 06111. If you are planning on receiving with this equipment your "long wire" antenna will suffice. The common rule of thumb is, get as much metal as high in the air as possible.

Citizens Band radio, while not as popular as it once was, will probably have a few stations on it due to the sheer number of radios still around. If you have to purchase a CB radio, look for a single side-

band type. This type of radio is built to last longer and usually has a better receiver.

Amateur (Ham) Radio will be the best place to look for other stations. Local stations operating on the "two-meter" band can be heard on most scanners. These operators usually use a "repeater," a device that re-transmits their signal for extended range. These repeaters operate at a frequency of about 145 MHz. This is high enough that they should not be bothered by the EMP. Many repeaters also have emergency power set-ups. The ARRL Repeater Directory, available at your library or from The American Radio Relay League, address above, will list all the repeaters in your area and whether they have emergency power available or not.

National and international Ham operations occur from about 3.5 MHz to 28 MHz. These frequencies are shared by the international broadcast community and different military organizations. A shortwave type radio will not normally be able to copy Ham broadcasts, while a Ham type radio will usually receive shortwave broadcasts. The difference is Ham operators use SSB (single sideband) techniques. To receive SSB you need a receiver designed to tune SSB. Without this special type receiver Ham transmissions sound more like a poor "Donald Duck."

As you consider the cost of a Ham type radio remember, in a disaster, local or world wide, Ham operators are the ones you can count on to be on the air. The reports from Hams are always the first from the scene of hurricanes, earthquakes, etc.

Training—No matter what type of equipment you obtain, you must learn to use it NOW. First make sure you understand the controls and operation of the radio in your home, then try it out in your shelter. The difference in antenna types, location, and the time of day can all make a difference. Once you are familiar with the operation of the radio and what you can expect to hear, make an operator's manual with that information in it so someone unfamiliar with the radio can use it. You should also teach several members of your group how to use the equipment and what to expect to hear at what time.

Free information and operating instructions on Ham equipment and antennas is available at your local Ham radio club. The only requirements they have is for you to be interested in training for an Amateur Radio license. Some clubs even have free formal classes in radio theory and Morse code. Clubs can be located by calling Boy Scout units or looking in the telephone book under Amateur Radio Stations. These clubs are, also, a good source of used equipment at a reasonable cost.

I will try to answer reader questions directed to the address below. Please include all information about your radio system and your night telephone number. Stephen W. Slate, P.O. Box 434, Luther, OK 73054. ●

MAIL CALL

Chest Pouches Author's Note

An author's note for my article "Chest Pouches You Can Make," (January 1987) was inadvertently left out of the article. I'd like to take this opportunity to thank Rees Day at Antique & Modern Firearms and Steve Gall, manager of Philip Gall's Sporting Goods, both in Lexington, Kentucky. Without their generous donations of weapons and backpacks, the photos with the article would not have been possible.

David Marshall Brahosky
Hope they see your note, Dave. Sorry, we accidentally left the note out of the article.

Private Armies

I have been into the study of survival skills since 1982, but it wasn't until August of this year that I discovered (quite accidentally) your publication. It has proven to be thought provoking, has indicated the strengths and weaknesses of my own survival plans, and has generally been a

delight to read. Although I found the article "Private Armies" (November 1986) to be very informative, it left a lot of unanswered questions on my mind. First, I am not a member of a survival group, nor am I a member of a "private army." Second, I consider myself to be a law-abiding, patriotic American citizen. After reading the article, I find myself stuck between the right-and left-wing extremists, the communists and possibly the American government. This is not a situation that I am happy to be in; what is a person to do? Should I become a member of a private army, who's mentality is not necessarily my own, in the name of survival? Does a small survival group have a chance in the face of such odds? Will the government accept help from patriotic survivalists or will they simply view all survivalists as radicals and extremists? These are but a few of the questions raised by this article, to which I have found no answers. I would like to know of your views on the subject. Keep up the good work.

Bill Gardner
Pasadena, Texas

You've raised some good questions, Bill. These are questions which we think many readers are asking. We don't have all the answers, but we'll be glad to give you a piece of our minds on the subject. The article "Private Armies" dealt with neo-Nazi Christians and other right-wing extremists, many of whom consider themselves survivalists, and with some left-wing extremist groups in this country. We knew it would be a controversial article since the news media frequently refers to the neo-Nazis as "survivalists" and thus contributes to the public's general ignorance and misunderstanding of what survivalism and the great majority of survivalists are all about. We feel it is necessary to distinguish between the radicals, criminals and crazies—who it seems are the only "survivalists" the news media is interested in—and what we know to be the vast majority of survivalists in this country. We're not saying that we agree with everything the govern-

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ment does, and we're not saying that we and other survivalists would or should blindly follow the government and all of its policies. But we do believe in the American way of life and in our system of law, and we are interested in helping our democratic system of government, despite its many faults and injustices, to continue, since we believe it is far better than any other form of government we know of. We think most survivalists feel this way and are in fact patriotic Americans. But should that system break down or cease to exist in a disaster situation or, say, in some coup, each person would have to decide for himself or herself where their loyalties are and what their priorities for survival are.

Combat Survivalists

Mr. Conti wrote a fairly good article in the December 1986 issue of *ASG* ("Force-men"), and I know that many of your readers will agree with much of what he said. However, I don't. In the office of the Regional Director for Live Free, South Central Region, I am in contact with many different survivalists from all over the country every day. At this time, the number is around 800 to 1,000. This number represents both individuals and groups, and my impression of the "Combat Survivalists" differs greatly from Mr. Conti's. He noted that most groups only touch on combat survival, and that's true. What they spend the rest of their time doing is learning practical skills, stockpiling goods and working on their food stockpiles so that they are self sufficient. However, the combat survivalist in general is spending his time and money on weapons and ammunition, and if these groups don't have benefactors to defend, they will be forced to turn into marauders and become a threat to others. Survivalists who stockpile atropine or try to practice medicine based on Red Cross first aid training and medical books, will wind up killing more patients than they save merely because they don't have the real training or knowledge to use that information. Most of the combat survivalists are only playing out their own macho man-Rambo fantasies. I disagree with Conti's statement that many of the combat survivalists are ex-military. If they were, they wouldn't need all the gadgets that so many others think they must have. Most ex-military personnel, myself included, are proud that we served our country's military, but we aren't going to go out in the woods and play soldier. The readers should stop and think for a minute. Sure, the press raises the specter

of the armed neo-Nazis, and lumps us all together, but their objections to the combat survivalists are valid. The plans they have for the *Red Dawn* scenario could also kill you, either directly, or indirectly by keeping you from reaching your retreat. So my message is that while combat and military knowledge will be needed for survival, it is a small part of the overall whole, and people who concentrate on weapons and military training to the exclusion of everything else are probably going to wind up dead.

Miles Cable, Live Free regional director
Houston, Texas

*You've made some good points, Miles, but we beg to differ with your interpretation of the article. First, we did not find that Mr. Conti's article stated that the combat survivalists he talked with were concentrating on combat to the exclusion of all else. Quite the contrary. And how can you say these people will of necessity turn into "marauders"? Also, we know that there are a considerable number of survivalists who engage in military-like training and seek to acquire combat skills. We know that many survivalists are in fact ex-military personnel, many of them having been officers and members of special units such as Special Forces, Rangers, Marine Recon, SEALs, etc. While survivalists come from diverse backgrounds and have diverse interests, we see nothing wrong with people studying to acquire combat skills and practicing those skills, so long as they are not breaking the law or harming others. If they are acting illegally or harming other people, they should be prosecuted to the fullest extent of the law. We do not feature firearms and other weapons in *ASG* and on its covers so frequently just for the fun of it. Let's face it, weaponry and combat skills are on the minds of many—though by no means all—survivalists. Even Live Free, though it's careful never to show weapons in photos of its members' activities, provides weapons training and, indeed, started out as an organization sponsored by the National Rifle Association. And, speaking of retreats, we suspect that there are many military tacticians who would find the survivalist idea of small groups or individuals trying to defend fortified retreats from hostile forces sheer madness. Who's right? We did not intend by using Mr. Conti's article to overemphasize combat survival; nor does it signal a change in our editorial format. But we recognize that combat survival skills are one aspect of survival knowledge of interest to some survivalists and we don't want to overlook it. ●*

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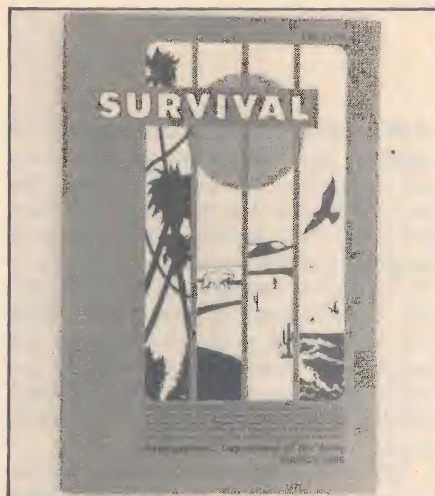
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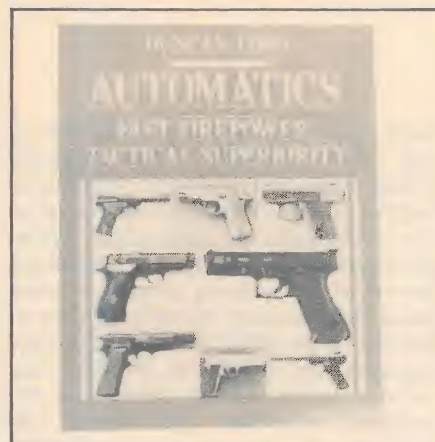
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BOOK REVIEWS



Survival, FM 21-76, Department of the Army; 300 pages, paperback; \$9.95 post-paid; Sierra Supply, Dept. ASG, P.O. Box 1390, Durango, CO 81302; (303) 259-1822.

This is the Army's latest all-environment survival manual for soldiers, printed in March 1986. It has 16 chapters and numerous appendices on all aspects of outdoors survival. "You could find yourself alone in a remote area, possibly enemy territory, with little or no personal gear," it is stated in the book's preface. "This manual gives you information and describes basic techniques that will enable you to cope with and come out alive if you find yourself in such a situation." In chapter one, titled, "The Will to Survive," the book says, "Many survival case histories show that stubborn, strong willpower can conquer many obstacles. One case history tells of a man stranded in the desert for eight days without food and water; he had no survival training, and he did nothing right. But he wanted to survive, and through sheer willpower, he did survive. With training, equipment, and the *will to survive*, you will find you can overcome any obstacle you may face. You will survive." Other chapters cover survival planning, survival medicine, field expedient weapons and tools, water procurement, wild plants for food, wildlife for food, shelters, firebuilding, water crossings, field expedient direction finding, signalling, desert survival, tropical survival, arctic and subarctic survival, and sea survival. Appendices cover poisonous snakes, military-issue survival kits, edible plants, poisonous plants, knots, climatic categories, and clouds as weather foretellers. With more than 80 color photos of edible and poisonous plants, poisonous snakes and cloud patterns and many black and white illustrations throughout the book, this is an excellent teaching and reference tool at a bargain basement price—A Sierra Supply exclusive.



Automatics, Fast Firepower, Tactical Superiority, by Duncan Long; Paladin Press, Dept. ASG, P.O. Box 1307, Boulder, CO 80306; (303) 443-7250; 136 pages, paperback; \$14.95 plus \$3 postage and handling.

"Like many people in the United States," says the author, "I've felt the need for a good defense pistol, and in my search for an ideal weapon, I've received all sorts of advice, good and bad, and tried out all types of weapons—also good and bad. Many pistols are excellent, most have at least a few shortcomings, and some are outright disasters in both design and execution. At best, most weapons are a compromise, and automatic pistols are no exception, but different people have different needs and manufacturers make different compromises. Getting the right pistol can shift the odds in the user's favor in combat; purchasing the wrong one can spell the user's doom... A lot of firearms are all but perfect thanks to good design, careful manufacture, and quality materials. I've written this book to help you find the pistol that is right for your needs, and I hope you'll find the same enjoyment and interest I have as you read of the strange handguns that have been developed to help people protect themselves." Long goes on to give readers a historical perspective on the development of the auto pistols, which he points out are usually auto *loading* rather than auto firing. He then covers a lot of ground in describing many of the world's most famous and effective pistols, from .22 and .25 calibers right up to .357, .44 and .45 magnum handguns. Chapters include coverage of .22 Long Rifle and .25 ACP pistols, .32 ACP and .380 ACP, 9mm and .38 Super, .45 ACP and the magnums. There are appendices on ballistics for common combat rounds, manufacturers, publications and video tapes, troubleshooting, and, lastly, the controversy surrounding the U.S. military's choice of the Beretta 92-F sidearm. This is a good book for those interested in handguns.



The Rescuers, The World's Top Anti-Terrorist Units, by Leroy Thompson; Paladin Press, Dept. ASG, P.O. Box 1307, Boulder, CO 80306; (303) 443-7250; 241 pages, hardcover; \$17.95 plus \$3 postage and handling.

The author, who has worked with or trained hostage rescue, counterinsurgency and VIP protection units in more than a dozen countries, has produced what is being billed as "the first book ever published on the subject of hostage rescue units (HRUs)." Thompson details and evaluates the units of more than 50 nations, including the U.S. Delta Force and the FBI's Hostage Rescue Team. He also presents his rating system for HRUs with the top 10 units and their scores. With more than 50 fascinating photos, the book discusses the HRUs of the U.S., Europe and the rest of the world, weapons and equipment, explanation of terms and a glossary of terrorist groups. This is an interesting, informative work.

How To Train A Guard Dog, by John Larson; J. Flores Publications, Dept. ASG, P.O. Box 14, Rosemead, CA 91770; 108 pages, paperback; \$12 postpaid.

This book outlines the steps necessary to train and develop security or "guard" dogs for home or personal protection. This is "Not just another obedience training book, but a complete 'How-To' guide on selection, care and training, of the dogs." "Examples of dogs preventing crimes are becoming increasingly common as more people realize the potential of these animals as crime stoppers and defensive allies," the author states. Chapters include dog breeds, dog diseases and their prevention, inspecting and grooming your dog, behavior and motivation, training equipment, principles of dog training and obedience, intermediate and advanced training. ●

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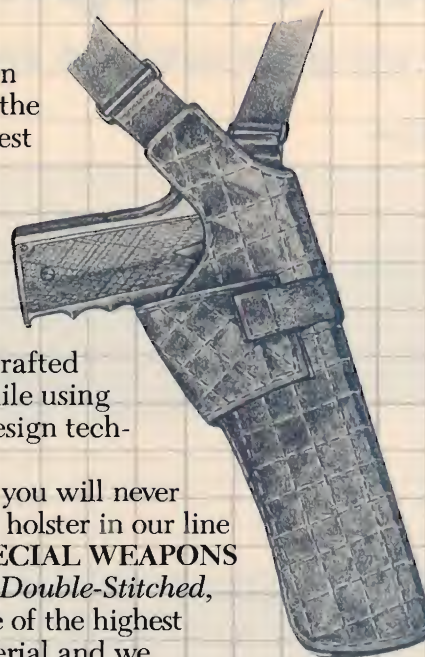
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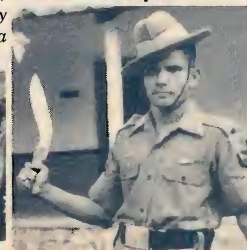
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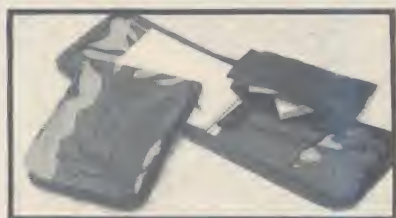
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Gourmet Treat:

Wild Mushrooms

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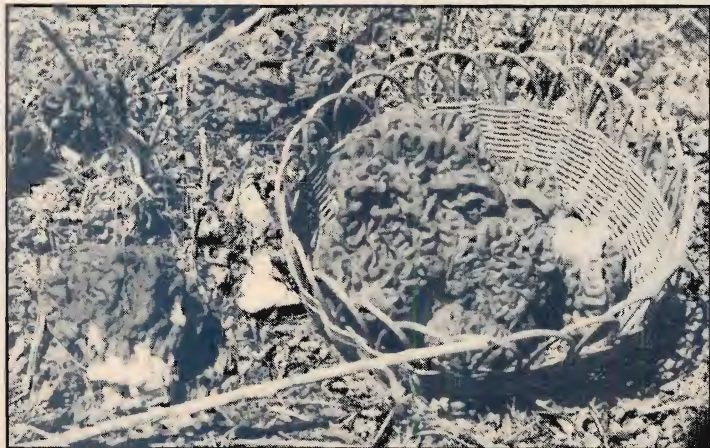
By Cleo M. Stephens



ABOVE—The morel mushroom, the mushroom gourmet's greatest delight.

RIGHT—The coral mushroom.

BELOW—The brain mushroom.





Which of these mushrooms are safe to eat and which are poisonous?

THERE comes that time in early spring when, regardless of the chill winds and rains, swarms of hardy individuals take to the woods, singly, in pairs, in family groups. Seemingly their sole purpose is to amble along wooded creek banks or ridgelines, heads lowered, as though in deep meditation, gazing at the ground.

But if you're wise to the ways of the wilds, you say to yourself, "Aha! The mushroom hunters are on the prowl again!"

And you will be so right. For the gourmet, there is no thrill greater than the discovery of that delectable delicacy—the morel mushroom.

There are definite signs that tell the experienced mushroom hunter when to take to the woods. There is no point in going before these signs appear, for certain. Spotted plants will appear in conjunction with the mushrooms, indicating that conditions have developed to that stage that is right for them. Our two most trustworthy tale-tellers are the mayapple and wild plum. When the mayapple is up and spreading its green umbrella of leaves and there is a snowy mist of blossoms on the wild plum tree, then you can be certain that it is also time for the coming out party of the morel. When redbud trees start to color up and dogwood to show pale green buds, just beginning to hint of the coming beauty of their white, four-petaled blooms, then there are sure to be mushrooms.

You *know* they are there, but knowing is not necessarily finding. You must get the *feel* of the hunt. You must learn to recognize areas where they are most likely to occur.

For example, in many areas, the big, spongy, red-brown brain mushroom appears first and these usually occur around old stumps or snags—primarily elm. It is an odd phenomenon that these stumps, when they have reached a certain stage of decay, seem to provide a necessary ingredient to the ground for the growth of mushrooms. You can, in fact, become so proficient at recognizing these stumps that you can often spot them by driving slowly

along a wooded by-road and invariably, when you get out to investigate, there will be the mushrooms, within a few feet of the stumps.

The smaller, creamy or grey-white morels (the greatest delight of the gourmet) cannot be spotted in this manner. They have no preference as to location and can grow on wooded ridges, old apple orchards or creek banks. And they are harder to find, for their color is so like that of the dead leaves strewn around them. But once an area where they occur is

BELOW—Sulphur shelf mushrooms.



located, the hunter returns year after year and invariably finds them there, and for this reason the dedicated mushroom hunter will go to any lengths to keep from revealing the location of his find.

A warning! No discussion on mushrooms should ever be concluded without the warning that there are the good guys and the bad guys and the bad guys are killers! For this reason, it is wise to do no experimenting but stay with the tried and true that cannot be mistaken for the poisonous types. There are six types we use but when a reader asked, "Do you recommend that we eat these six?" we said, "No. We do not, because, as with any food there are those who may have an allergy to them." We only say, "We use these."

For us, the umbrella types, especially those that have gills on the underside, are

(Continued on page 69)

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ABOVE—The Mini Thirty, below, is a modified version of the popular Mini-14, above. The Mini-14 shown here is fitted with a Ram-Line rear sight, 30-round plastic magazine, E&L barrel shroud and DTA MIL/BRAKE muzzle brake.

BELOW—The rear sight is adjustable for elevation with a small flathead screwdriver and for windage with a hex-head wrench provided with the rifle. Front sight is a ramped blade.



BELOW—The five-round detachable box Mini Thirty magazine is not interchangeable with other Mini-14 magazines, although the magazine provided with the test Mini Thirty had "Ruger mini-14" stamped on its base.



The safety mechanism is located forward of the trigger and is in the "ON" position when moved fully rearward into the trigger guard.

Sturm, Ruger and Co.:

The Mini Thirty Rifle

This version of the Mini-14 Ranch Rifle, chambered for the 7.62 x 39mm cartridge, is a winner . . .

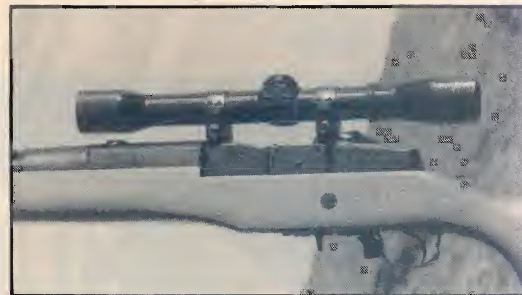
By Bud Lang



ABOVE — (L to R) The .308 Win. cartridge is ideal for big game, and is the NATO big bore round. The Russian 7.62x39mm cartridge is standard with communist bloc countries, and should prove popular in the Ruger. At right is the equally popular .223 Rem. (5.56mm NATO) high velocity cartridge.

LEFT — Shannon Lang had a ball firing this newest rifle from Ruger. Her best five-shot group at 100 yards was 3.2 inches, not bad for such a small cartridge and box-stock rifle.

BELOW — Integral scope bases accept Ruger rings. Our scope is a Redfield, and really improved the accuracy of this lightweight rifle.



rifle in 1943 to challenge the Germans.

This little .30 caliber cartridge is a natural because its overall length is slightly shorter (about .070-inch) than the 5.56mm NATO round (.223 Rem.).

We chronographed a number of Yugoslav rounds with our Oehler Model 33 Chronotach, at 10 feet from the muzzle, and came up with an average just over 2,100 fps. Most .223 Rem. varmint rounds will clock between 3,000 and 3,200 fps, about 50 percent more on the velocity scale. Muzzle energy of the 120-grain ball 7.62 x 39mm round is about 1,560 foot pounds, as compared to a 55-grain .223 Rem. at 1,239 foot pounds.

The Mini-14 rifles are very strong, so it was quite easy to modify the Mini-14 Ranch Rifle to accept this new cartridge. The major changes include the barrel bore, slight receiver changes, and a bolt face designed to handle the larger head of the 7.62 cartridge. Like the Ranch Rifle, the Mini Thirty receiver accommodates Ruger's Integral Scope Mount rings and features an auxiliary folding leaf rear peep sight.

We were able to pick up a batch of surplus ammo locally so we could test this exciting new rifle, but right off the bat we were plagued with troubles, not from the rifle, but from the ammo. We had some Red Chinese steel-cased ammo (green colored cases) that proved to be bad news. With the sight all the way up, it printed about 14 inches low. In adjusting the elevation on the sight, we discovered the set screws are quite fragile; a screw head stripped easily. The Chinese ammo also didn't have the power to function the bolt all the time. Sometimes it would open par-

(Continued on page 62)

STURM, RUGER'S Mini-14 has to be one of the most popular semiautomatic sporting rifles ever developed. We haven't got the sales figures on this little .223 Rem. sporter, but we're sure it has sold far better than any other rifle in modern times. And now Ruger has hit the

world with still another version of this very popular gun, called the Mini Thirty. Unlike the ill-fated XG-1, chambered for the .308 Win. cartridge, the Mini Thirty takes a 7.62 x 39mm Russian (sometimes called the Short), which came into being when the Russians came up with an assault

2 X 4, 4 X 4:

Lean Machine VS. Mean Machine

Selecting a vehicle that will provide low-cost, low-maintenance, long-haul capabilities with acceptable payload . . .

By W. Ed Poe



A bottom-of-the-line, small pickup could be the near perfect "get away" survival vehicle. Overall low cost of the vehicle, operation and maintenance are major factors in selection.

THE small convoy of five vehicles had traveled only 250 miles when the CB radio sounded-off a request for a pit stop. The Jeep CJ driver stated he needed fuel. At the next major interchange, the lead vehicle turned off and headed for the nearest gas pump.

After all vehicles filled up, we checked gas mileages for the purpose of establishing approximate travel ranges for each vehicle. Each vehicle owner wanted to know just how far they could travel on interstate highways, loaded with at least two occupants and enough camping gear to survive in the wilderness for at least a week. In our case, each vehicle had a canoe secured to the top which was to be used for a week's trip down the Current River in Missouri.

Our hodgepodge convoy consisted of two Toyota 2WD pickups, with camper shells, one Chevrolet Passenger Van, one Jeep CJ 4WD, with a hard top and one Jeep Cherokee 4WD.

Our highway travel speed was between 55 mph and 60 mph, with the first 18 miles of driving on two lane highways and the remaining on interstate. All vehicles had filled up at the same pump prior to departure.

Our figures indicated the following: Toyota, short bed had 27 mpg. The Toyota, long bed had 22.5 mpg. The Chevrolet Van had a low 12.5 mpg. The Jeep CJ had 18 mpg and the Jeep Cherokee had the second lowest of 15.5 mpg.

Now . . . before you yell, "Unfair comparison," I'll say it for you. Yes, this kind of test is unfair. We had no intention of comparing specifications of one vehicle to another. Our goal was to establish the aforementioned travel range of each vehicle and to try to develop a common sense approach to selecting a vehicle that would provide low-cost, low-maintenance, long-haul capabilities with an acceptable payload. In the final analysis, the group as a whole selected the bottom-of-the-line shortbed, standard cab, four-cylinder, 2 WD Toyota pickup. This selection was made based on the vehicles within the convoy since they were what we owned.

However, other vehicles were discussed over the next several days on the river. The first vehicles dismissed from our potentials were the expensive to purchase and expensive to operate self-propelled mobile homes or campers. The enormous amount of gadgetry subject to failures, low gas mileage and the simple fact that a fire within

the unit may disable your mode of transportation and/or supplies and equipment eliminated them.

Based upon our convictions, the next type of vehicles to be dismissed from our conversation were the "Mean Machines" or as some call them, "War Wagons." The all-terrain, weapons-carrying, bullet-proof, high-horsepower and fuel-eating engines have no place in our survival fleet. Moving our equipment and loved ones away from any situation calling for a "Mean Machine" is more important to us.

The all-terrain, four- or six-wheeled vehicles were also rejected, except as a secondary vehicle to be used as a scout or supply vehicle. As a prime vehicle, they were rightly passed over.

Even though two members of our party were Jeep owners, they, like the others and myself, felt the CJ was not suited for a total survival scenario. Fuel consumption, payload capabilities, and high maintenance requirements are strikes against most off-the-road special purpose vehicles. In our line of thinking, most of the cute little 4x4 vehicles are toys for recreation or "figure-eights" in some neighbor's front yard. The main thinking was that none of us would have the ability to repair the transfer case or powertrain should it break down under emergency situations.

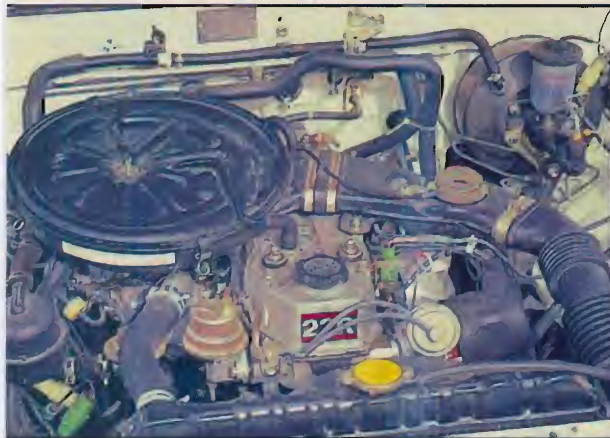
Passenger and cargo vans were quickly eliminated due to gas consumption, maintenance and secondary road travel capabilities. Their comfort and payload capabilities are, without question, the best of all vehicles considered. There are just too many places they can't travel. The owner of the van on our trip was the first to veto a van as a long-range survival vehicle even though his van has an approximate driving range of 450 miles with a full 36-gallon tank. He also claimed the van required too many special tools to perform maintenance in the field. I will say the van's V8 engine certainly overshadowed the Toyota's small 4 cylinder, when it came to needed power.

When the owner of the Jeep Cherokee was asked if he considered his station wagon a survival vehicle, he stated, "Only as a last resort." Most of the men disagree.

(Continued on page 68)



The stripped-down basic 2 WD pickup is much lower in price yet has numerous advantages over expensive 4 WD all-terrain many-accessories vehicles



ABOVE—In survival, simplicity and no-hassle are important. This four-cylinder Toyota engine is one of the easiest on the market to maintain and repair.

BELOW, BOTTOM LEFT, BOTTOM RIGHT—4 WD vehicles like these have many assets but for long-term survival their complexity could become a liability.





82nd Airborne Division.

U.S. Marine Corps.



The Airmobile Team.



**AMERICAN
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Combat Posters

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Staff Report



"One Shot-One Kill"—U.S. Army Sniper Team.

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22-inch U.S. Marine Corps poster and The Airmobile Team poster shown here.

Army Sniper Team, a 24- by 17½-inch color poster by Max Crace shown here in the black and white photo is also available in standard poster form, signed and numbered limited edition and professionally framed limited edition at \$11.95, \$49.95 and \$150 postpaid.

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Armed Services, Law Enforcement:

New Tactical Load Bearing Vest

This system incorporates some ALICE components and offers improved comfort, wear and ease and speed of deployment . . .

By Richard Garrison



The new U.S. Army load bearing vest. The two top outside pockets each hold two 30-round M16 magazines. The two inside top pockets each hold one 30-round M16 magazine. Pockets at waist level hold fragmentation grenades. The vest is held together by two Delrin buckles and a web belt buckle.

FOR more than two and half years, the United States Army Natick Research and Development Center, in conjunction with the Army Combat Development Center at Fort Benning, Georgia, has been developing a general purpose load bearing system, designed to carry the basic combat load of the individual soldier. The Army was not entirely satisfied with the current issue All-Purpose Lightweight Individual Carrying Equipment, known more fondly as ALICE gear, and undertook a design and testing regimen to replace it.

The Natick R&D Center and the Combat Development Center considered all the

parameters involved in equipping the field soldier and established priorities that were included in the design. Some of the criteria included security of equipment, ease and speed of deployment, durability of components in adverse conditions, comfort, and flexibility. In addition, the new Army load bearing vest was designed to have a life of 120 field days.

After arriving at an initial design, the Army solicited vests from a variety of manufacturers. One of those manufacturers was Adventure Specialists of Miami, Florida, which has made load bearing vests for a number of special units of the U.S.

armed forces, as well as for many law enforcement agencies in the U.S. After extensive testing, the U.S. Army has awarded the first contract of the load bearing vest for servicewide deployment to Adventure Specialists, Inc.

The Army seems to have returned to the concept of equipping the individual combat soldier with a combat or fighting load, with additional components attached to the main load bearing vest available for existence loads. The M1956 lightweight load carrying equipment featured a web belt, suspenders, field pack, entrenching tool carrier, ammunition carrier, canteen

covers, first aid case, and sleeping bag carrier. Later ALICE equipment did not have provisions to carry a field pack or sleeping bag.

The current load carrying equipment (ALICE) consists of: individual equipment belt, known as the web belt; individual equipment belt suspenders; small arms ammunition case (two each) capable of carrying three 30-round magazines for M16 and two fragmentation grenades; entrenching tool carrier; canteen cover; first aid dressing/compass case.

The new Army load bearing vest consists of: individual equipment belt or web belt; individual load bearing vest, with two pouches for single 30-rd. M16 magazines, two pouches for double 30-rd. M16 magazines and two pouches for fragmentation grenades; hangers for the pack; D-rings to attach the gas mask respirator carrier.

The new load bearing system and load bearing vest do not include all new components, but incorporate some ALICE components that will continue to be used—the individual equipment belt or web belt, first aid case, canteen cover(s), pistol holster (belt), magazine carriers (pistol), and entrenching tool carrier, plus the ability to augment the primary combat load with the carriers for the new SAW 100-round box.

To equip the individual combat soldier with his existence load within the new load bearing vest concept, the Army has developed new components to be integrated with the load-bearing vest: Ranger rucksack (field pack); bedroll; ground-cloth/shelter; gas mask/respirator carrier.

The Army load bearing vest consists of four major components: shoulder/yoke assembly, right front vest panel, left front vest panel and the rear back panel. It is designed so that one size fits all. There are four straps—two in the front and two in the rear—connecting the shoulder/yoke assembly to the vest panels and back panel. These straps are adjustable much in the same manner as the ALICE suspenders. These four straps provide a wide variety of adjustment for body height and can differentiate between front and rear height, allowing for maximum personal comfort. There are accordion-style lace side adjustments with a cord slide-lock between the rear back panel and front vest panels, allowing for an infinite adjustment in circumference. Additionally, the front of the Army load bearing vest is closed by two Delrin quick-release buckles that have additional adjustment for circumference.

These features allow for easy and relatively quick adjustments for various mission requirements. For example, cold weather protection or body armor can be added underneath the Army load bearing vest and then the best can be resized with a **minimum of effort**.

The main body of the Army load bearing vest is constructed of nine-ounce ballistic nylon in a woodland camouflage pattern. Adventure Specialists "hot knives" the



Rear view of the load bearing vest shows the side accordion-style adjustments, reinforced back pad, adjustment straps for height and D-rings to affix the redesigned gas mask/respirator carrier.



A fully loaded load bearing vest system with six 30-round magazines, two fragmentation grenades, canteens and other equipment presents a low profile. The vest is designed to keep equipment shift to a minimum. There is still room for the new 100-round Squad Automatic Weapon (SAW) boxes, packs, gas mask/respirator and other equipment.

nylon as it is being cut out. This is a significant advance in nylon fabrication, as standard cutting of nylon leaves it open to raveling, a significant problem. "Hot knife" cuts the nylon fabric with a hot knife that sears the ends of the nylon thread as it cuts, eliminating the possibility of raveling, achieving the same results as cutting nylon rope and then burning the end with open flame. All exposed edges are finished with nylon tape and stitched. The ballistic nylon is quick drying and resistant to mildewing and abrasion. The thread is parachute-quality nylon thread.

The shoulder/yoke assembly is padded internally with neoprene closed-cell foam. This padding is highly resistant to gas, oil, solvents and other chemical compounds found in combat and support settings. The back panels have double layers of nylon and are reinforced. The grommets used in the lacing and drain-holes are "00" grommets, specially designed not to pull out and to resist tearing. These grommets have a special beveled interior edge that is less abrasive on the parachute cord used in the side adjustment. The grommets are made of brass and have a phosphate finish.

The flaps on the magazine pockets have a double-redundancy security system, featuring both a metal snap and hook-and-pile fasteners, while the flaps on the fragmentation grenades only have snaps. The straps attached to the bottom of the load bearing vest and used to affix the web belt also have a double-redundancy closure with black snaps and hook-and-pile fasteners.

While the Army load bearing vest was of military design, several of Adventure Specialists' design features and manufacturing techniques were incorporated in the final product. All webbing in high stress areas and the hook-and-loop fasteners are sewn on with Box-X stitching, and Adventure Specialists is the only company to hot knife all their products. These manufacturing standards were based on years of designing and building load bearing vests built to parachute standards by FAA-certified master parachute riggers. Placement of key adjustments and fasteners were modified based on Adventure Specialists' experience in making load bearing vests, rappelling harness/STABO extraction loadbearing vests, and tactical assault vests used by all branches of the armed forces, the FBI, U.S. Marshals, U.S. Customs Service, U.S. Border Patrol, and numerous other agencies, and on their use of computer-aided design.

"The Army designed the vest. They established the parameters and made the priorities. Of course, they had Adventure Specialists' vests for years while they were developing theirs," commented Bobby Overbey, President of Adventure Specialists, Inc.

The Army load bearing vest is an improvement over ALICE gear. The combat load is carried higher on the body for easier access and the design and layout of pockets give the soldier a lower profile and less accessory shift during movement. The weight is spread over a broader area on the shoulders, reducing perceived weight as well as fatigue. Wearer adjustment is more varied and field repairable. It is cost effective and provides greater load carrying capabilities and flexibility.

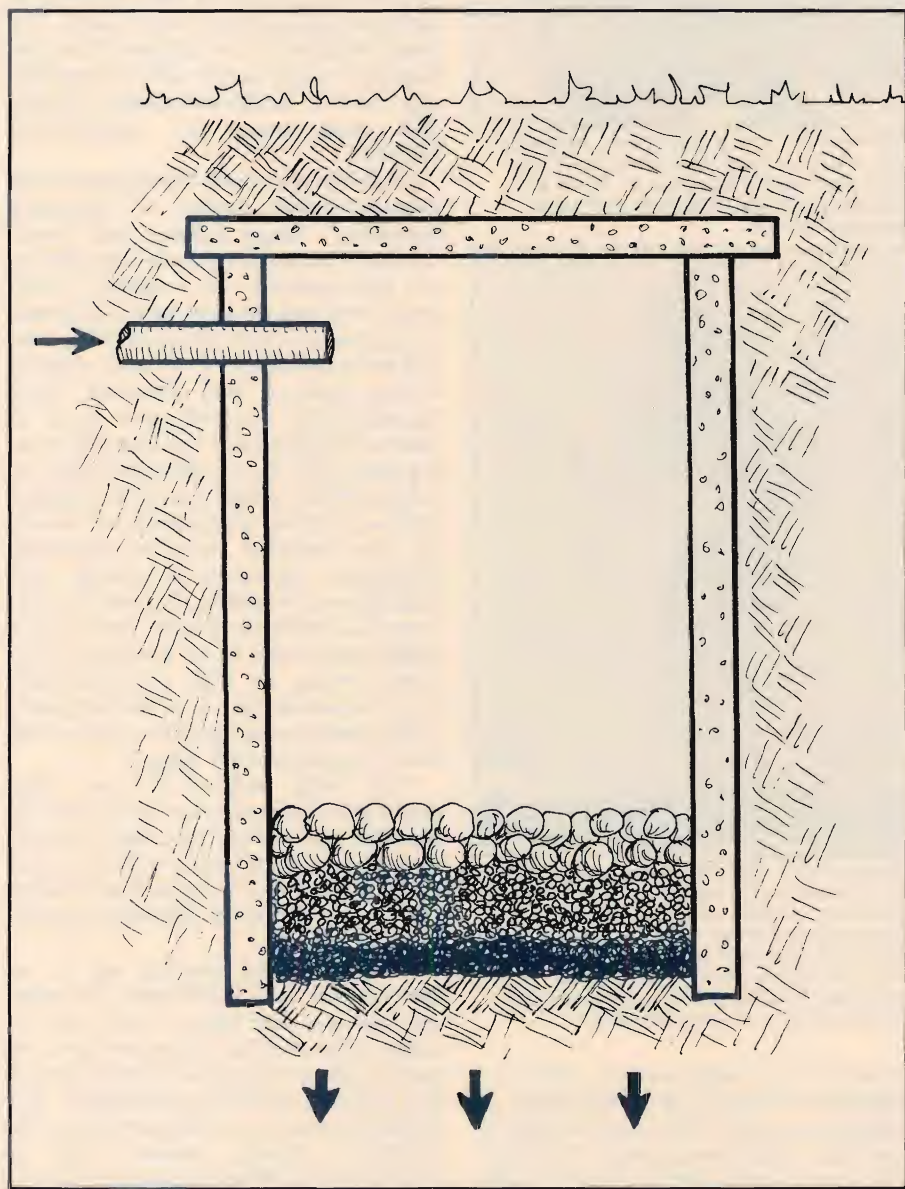
This new tactical load bearing vest is now available to the public for \$99 post-paid from The Dutchman, Dept. ASG, 9071 Metcalf, Suite 158, Overland Park, KS 66212; for ordering call toll free (800) 821-5157. ●

Disease Threats:

Disaster/Shelter Waste Disposal

Human waste and garbage is a witch's brew of deadly bacteria, viruses and poisonous chemicals . . .

By Duncan Long



ABOVE—A cesspool is basically a deep hole lined with concrete or bricks. The bottom is left open to the earth and covered with a foot or more of layers of sand, gravel and rock. Sewage is drained into this pit via a pipe. This system is safe only if located well away from water supplies and if it is large enough to handle the sewage coming into it.

RIGHT—A modern septic tank is most efficient if it has two chambers. The first chamber (on the left) collects waste and uses anaerobic bacteria digestion of the sludge. The second section (right chamber) holds the processed effluent until the chamber is full, then the liquid is automatically pushed out as more waste enters the system. This discharge is then routed through a pipe into "vitrification beds" of gravel. Large cleanout openings should be placed on septic tanks which might have to be cleaned out manually.

WASTE disposal can be a matter of life and death. Many historians feel that the thing that has saved the most lives and contributed the most to longer life expectancy in the 20th century isn't better nutrition, wonder drugs, or better medical know-how. Rather, the taken-for-granted invention which helped us into our quality way life was the lowly sewer line and proper methods of dealing with human excrement.

Human waste and garbage is a witch's brew of deadly bacteria, viruses and poisonous chemicals. Most people carry, inside their gastrointestinal tracts, many deadly "bugs" which are, fortunately, kept in check by the body's defenses. Once these bacteria are free of the human body's defenses, however, they become free to multiply in human waste. If these wastes are somehow reintroduced into water supplies, the concentrations of bacteria and viruses can cause sickness and death.

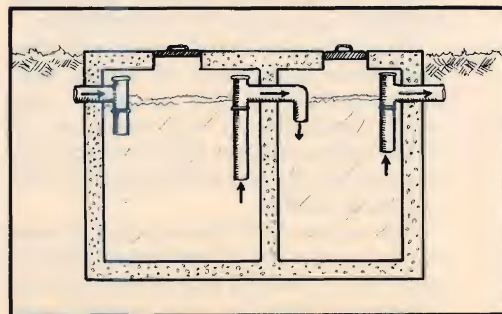
Additionally, human excrement is an excellent medium in which bacteria and viruses can multiply. It also attracts flies, cockroaches, rats, and other vermin which can carry dysentery, typhoid, paratyphoid, cholera, and plague. Consequently, improper waste disposal will almost guarantee an outbreak of a deadly disease.

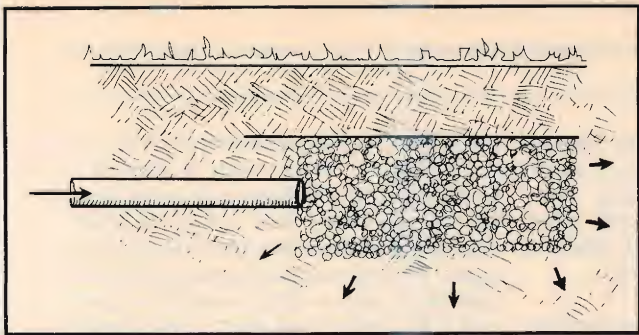
Unfortunately most vermin have high resistance to radiation which would make them extra dangerous in a nuclear war situation.

Additionally, paper wastes and trash—even if clean enough not to be a health consideration from the standpoint of the bacteria or viruses on them—can furnish a home for vermin. Such trash could also attract unwanted human attention in the aftermath of a disaster. Looters or other undesirables could be alerted to your presence if you've created a mound of empty cans and other garbage outside a refuge. In a disaster, being a "litter bug" can be hazardous to your health!

Unfortunately, disposal systems are one of the first things to go in the aftermath of a war or natural disaster. In fact, many wars and disasters have more "casualties" caused by diseases created by improper waste disposal than by the actual combat or disaster. These deaths are needless; a few simple precautions and practices would eliminate such waste of life.

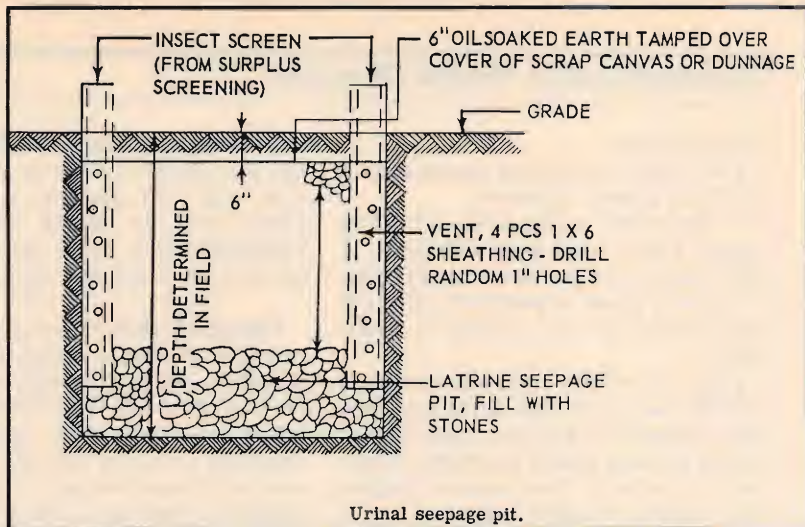
Fortunately, dealing with waste is not complicated. If you understand a few basic principles, make a few preparations, and





ABOVE—A vitrification bed is used to process the runoff from a septic tank. Modern vitrification beds are buried in the ground; if care is taken not to overburden the field, the bacteria in the earth are capable of breaking down the organic matter in discharge water.

RIGHT—A U.S. military urinal seepage pit is little more than a cesspool. By using separate facilities for processing urine and feces, sewage systems can be much more efficient.



Urinal seepage pit.

carry out proper procedures, you could keep from creating a life-threatening build up of dangerous wastes. If, however, you fail to take care in dealing with waste, you may actually survive a nuclear war or other major disaster only to die from a disease which has been all but eradicated by modern waste disposal methods.

The basic principle is simple: keep waste and the pests it can attract away from food and water supplies. Now let's see how to go about doing this.

Obviously the garbage man probably won't continue making his rounds. If large groups of civilians survive the initial crisis (which might not be the case in a disaster like nuclear war), survivors could face mounds of trash and garbage which would pile up very quickly. This material will become dangerous very quickly. In such a situation, there is really only one solution: the trash must be burned as soon as possible and the material which can't be burned must be buried or stored in abandoned buildings. This is all far from ideal but would be the only way to head off the health problems which would quickly develop as rodents and insects found homes in the garbage. The fumes and smoke given off through the burning of plastics can be quite dangerous; but the deadly fumes would be less dangerous than the health problems which are created when garbage builds up.

Perhaps more of a problem would be created by the human excrement which would be generated by a disaster which disrupts utilities without killing off a large segment of the population.

Most modern cities and many "rural" areas as well have sewer lines which feed into a sewage treatment plant. During a war or other major disaster, the pumps moving effluent (the polite word for liquid human wastes) and sludge (the heavier solid wastes) will be inoperable. That means that those in high areas of town may still be able to use the sewer system for a short time—until things get clogged up. Those in low-lying areas—or the bottom floors of high rises—may see their sewers back up into living areas. If YOU are the

"low man on the totem pole," give some thought as to how to disconnect your sewer line from the city's system.

Fortunately, water in a city's supply system will probably also vanish during a crisis which causes a failure of the sewage system. This will keep large amounts of water from flooding into the non-functioning sewers.

On the other hand, if you were in an area where there were large casualties and you were forced to hole up in a fallout shelter or found yourself in a similar situation, and if you were in a high area of town, you might be able to use a sewer to get rid of your liquid wastes until it was safe to venture into the open and create a suitable system as outlined below. But this would be far from ideal since there is no way of knowing how long the sewer could be used before it backed up. And the waste will go untreated wherever it ends up; eventually there'll be one whale of a waste problem which will lead to disease and contamination in your area.

There are other better alternatives.

One is to "camp out" in your shelter and store waste as it builds up. This is little better than using a non-operable sewer system; but you do have a lot more control over what's going on so that you don't get any ugly surprises. This is also the level of waste disposal that most fallout shelters demand due to lack of funds available to the citizen creating his own private shelter.

Perhaps the most important consideration in such a primitive system is how long it will be needed. As time goes on, this system becomes more dangerous since containers for holding waste become scarce as well as deteriorating to the point of leaking. Since a protracted nuclear war could mean staying in a shelter for months in areas of high fallout, some thought to other systems of disposal would be in order for those living downwind from major targets.

Strategies—There are a number of strategies which can be used to make such a primitive shelter disposal system workable and bearable, however, provided the

occupants are able to live with the crude accommodations.

In addition to human excrement, people generate a lot of waste water in cleaning up and food preparation. In a shelter, getting rid of this water, trash, and garbage can become a crisis. The best strategy is to cut way down on the water that is being used in the shelter. One way to do this is to use paper plates, paper cups, etc. and have occupants "lick" their utensils clean and then use them again for the next meal.

Washing hands, cleaning spots off clothes, "spit baths," etc., can be carried out with "diaper wipes" used to clean babies and available in most grocery stores. These disposable cleaning cloths do an excellent job of cleaning and can then be thrown away and treated like dry paper after they've been used.

Garbage can be stored in empty food containers. Even regular cans can be used for storing garbage. By saving the lid, the container can be filled with garbage, the lid replaced, and the can sealed shut with masking tape or duct tape. Take care when storing these containers that the seals on them aren't disturbed; tape will tend to come loose over time. Having the "ripe" garbage get loose would be far from ideal! Plastic bottles can also be used for storing garbage. Don't use glass containers to store garbage since the glass is easily broken—with disastrous results if it contains "ripe" garbage.

Non-liquid wastes like paper, dirty rags, paper plates, diaper wipes, etc., can be placed in plastic garbage bags; just be sure rodents or stray pets can't gain access to them.

As soon as possible, these cans of garbage and trash sacks should be buried, unless trash collection is to be resumed—a doubtful proposition following a major disaster. This material should be buried downhill from your well or other water source (so that it won't contaminate them) and be under enough soil so that it won't be dug up by animals. You should also give some thought toward keeping this trash out of areas which may be used later for gardening or even farming in a post-

Disaster/Shelter Waste Disposal

disaster period.

The other big disposal problem in a disaster is human excrement.

A "rest room" can be crude and still be usable. But it must work efficiently. A pail, bucket, or a portable chemical toilet is simple to create or purchase and—with care—would get you through a major crisis.

Since the "weighty" part of excrement is actually water, if you can divide your excrement disposal into liquid and solid wastes, storage becomes greatly simplified. Therefore, it is wise to have separate facilities (i.e., buckets) for urine and feces.

The pail or bucket for feces should be lined with a garbage bag so that excrement can be easily removed and stored if you don't have a way to move it into a septic tank or the like. Don't let the bag get too full; and remember that plastic bags aren't too strong. Excrement bags should be carefully sealed BUT not too tightly. Feces creates methane gas as it is broken down by bacteria. This gas will rupture a plastic bag which is sealed too tightly. The bags should also be stored where the smell coming from them will not be coming back into your living area. Be aware of the direction of prevailing winds as well as the intake/exhaust areas of your living area.

If possible, a large hole could be dug outside a fallout shelter and the excrement bags stored in the hole until they can be buried following an end to the nuclear war or other crisis. Great care should be taken to keep this hole free of vermin. Use of insecticides and a tough cover over the hole is a must.

Make such a pit deep and use the dirt from it to make a trench around the hole so that rain water can't drain off the soil surrounding it and into the pit, causing it to overflow. If you're using such a waste pit in conjunction to a nuclear fallout shelter, one of your first tasks when you can finally leave your shelter should be to bury the waste from the pit so that it won't become a health hazard or a breeding ground for pests.

Urine and water used in cleaning and food processing is initially relatively low in dangerous bacteria (as compared with feces) and could be stored in empty containers which had been full of emergency water supplies. These liquids could also be transferred via a hand pump or—more ideally—by gravity action into a cesspool or sewer system (as outlined below). Since this will be the bulk of your waste problem, thought should be given to how to deal with this liquid waste. If these liquids are to be transferred outside the shelter area, the sooner the transfer is made, the fewer bacteria will have grown in the liquid. Once the liquid waste has been stored for any length of time, it becomes very contaminated.

Buckets or barrel "toilets" should have a

seat made or purchased for them. Generally the simplest route is to go to a hardware store and purchase a toilet seat. (These seats can also be removed from household toilets with a pair of pliers if you're in an "improvise" situation.)

Chemical Toilets—These are better than make-do buckets and pails but, ideally, should be used only for liquid wastes while plastic bags are used for feces. Chemical toilets do require extra space for the chemicals and water that they need, however. So if space or water is at a premium, a pail is a better bet. One good portable system is the "Porta-potti" marketed by Sears and some camping stores.

To keep smells down in your pail, bucket, or "porta-potti," it's possible to use the chemicals designed for chemical toilets to treat excrement. Companies selling the portable chemical toilets also sell the chemicals for them. You can also improvise your own chemicals from formaldehyde and methyl alcohol (available at almost any drug store); rubbing alcohol by itself can also be used. With the feces pail, powdered lime or chloride of lime may be added to the excrement to keep bacteria growth under control; wood ash or soil will work for this purpose in a pinch. In the cramped space of a shelter, some thought should also be given to privacy. A shower curtain or screening of some sort is important. Air fresheners containing alcohol will also help keep both smells and bacteria out of the air.

Venting the "toilet bucket" will help keep odors down. A separate vent pipe (or even a garden hose) leading down to the bucket would be best but placing your "bathroom" near the exhaust vent of the shelter will also work. This is important, too, with chemical toilets; while the chemicals for them help keep smells down, the units are not odorless despite the ad hype.

If you have a source of water, it would be possible to use a standard flush toilet in a shelter if you went to some extra work and added a septic system—or even a crude cesspool—for the stool to drain into. This would be a big step up in waste disposal and a morale booster in a crisis.

Standard toilet tanks can be filled by carrying water to them or groups of tanks might be filled "automatically" if water is introduced somewhere into your water line. Because toilets have an automatic valve in them which turns water on and off, a simple siphoning system can be created in nearly any home with indoor plumbing. All that is needed is to shut off the supply line coming into the house (assuming a city water system is being used) and then place a large barrel or other container on a counter or other area which will keep your water supply higher than the toilet tank. A surgical hose or plastic pipe is then used to connect the water supply of

the barrel to a spigot or sink (be sure the valve is open). When water is used at a level lower than the barrel, the water leaving the pipes will create a vacuum which will siphon water from your source into the pipes. While the water pressure will be low (making it take a while to refill the toilet tank), this system will work if the plumbing in the house is still intact following a disaster. The only drawback to this system is that U.S. toilets are up to five gallons of water per flush (as opposed to one gallon for those of other countries). Therefore, unless you have a good source of water during a crisis, hauling water to keep your plumbing going is an iffy proposition.

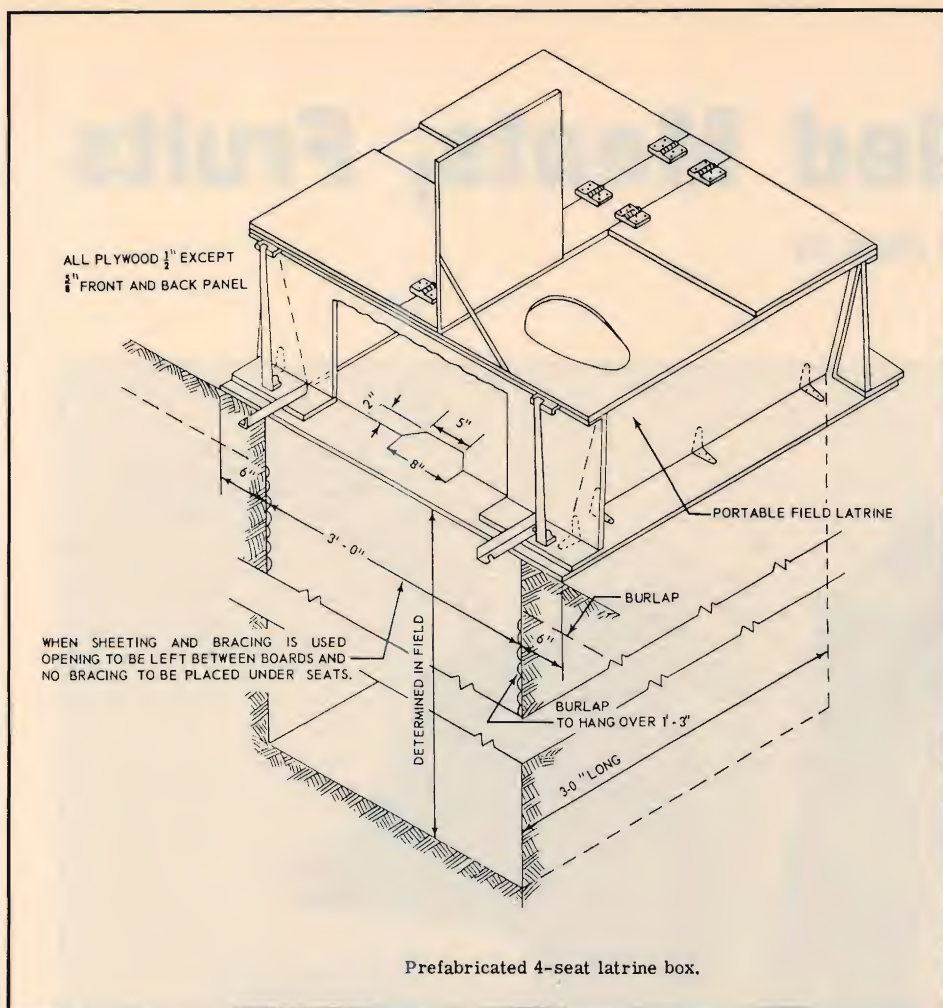
Cesspools, Septic Tanks—In any event, a cesspool or septic tank into which you can feed wastes from your shelter or home (either through a gravity system or with a pump) would be a great advantage both from a convenience standpoint as well as a health standpoint.

Cesspools were the forerunner to the modern septic tank. The cesspool is better than digging holes for bags of waste—but not a whole lot better. A cesspool is basically just a deep hole dug 10 or 15 feet into the earth and lined with bricks. The bottom is left open to the earth and covered with a foot or more of layers of sand, gravel, and rock (in that order). The top of the hole is covered airtight to allow anaerobic bacteria to "digest" waste and to keep surface water out (as well as stray children and animals). Sewage is drained into this pit via a sewer pipe.

A cesspool is safe to use only if it is well away from water supplies (this generally means downhill from a water source) and if it is large enough to handle the sewage coming into it. In areas where the population is small, cesspools can do a fair job of treating human wastes by using bacteria to break down the sewage before it travels far into the earth. Cesspools are not forever, however. Over time the sludge builds up in them so that they must be abandoned and new ones dug. But a cesspool is inexpensive to construct and might be a good idea in a sewage system for a shelter which would be used only during an emergency. In such a case, a cesspool would be far superior to trying to store wastes in plastic bags, containers, or an open pit.

In general, the bigger the cesspool is and the less material flowing into it, the longer it will keep going. Most cesspools will last only a decade or two. Size of a cesspool will depend on how far it is from water supplies and how quickly water is absorbed into the earth. Size should be at least 30 to 60 cubic feet per person using it.

The septic tank is similar to the cesspool but is made so that the sludge can be cleaned out of it and so that water which has been processed by it is ejected back into the environment more fully processed



LEFT—A U.S. military "four seater" can be placed over a cesspool or septic tank. Use of privacy screening would make this unit better for civilian use. Such simple patterns could be implemented following a disaster to prevent the outbreak of serious diseases among survivors.

VITRIFICATION FIELD SIZE

Time for

1-inch Fall: 2 3 4 5 10 15 30 60

Square Foot

Size Needed: 50 60 70 80 100 130 180 240

The figure you have now is for ONE person using the septic system. Be sure to multiply the figure by the total number of people in your group. If a large number of people are using a septic tank, be sure to use a number of vitrification fields connected by "T" connectors rather than having one very large—and inefficient—field.

Each vitrification bed is usually a trench into which the discharge water travels through an iron or tile pipe. The pipe opens into the vitrification field composed of coarse gravel 8 to 24 inches deep. If the field is to be covered, a layer of plastic sheeting should go over the gravel and at least one foot of compacted earth over that. Vitrification beds which aren't covered by earth will have a greater efficiency since some water can evaporate into the air. The air will also speed up the killing of any dangerous bacteria which manage to travel through the septic system into the vitrification field.

and made safe (though it is still wise to have the septic tank downhill from water supplies).

Septic tanks generally have one to three chambers; two chamber tanks are the most efficient and desirable. The first chamber collects all the waste and uses anaerobic bacteria digestion of the sludge. The second section holds the processed effluent until its chamber is full, then the liquid is automatically pushed out as more waste enters the system. While in the second section of some tanks, aerobic digestion takes place (these tanks have a vent pipe in the section chamber). The discharge from the second section of the tank is then routed through a pipe into "vitrification beds" of gravel; the vitrification beds expose the water to the air and sunlight (both of which kill many harmful bacteria) and then allow the water to filter into the earth or a nearby body of water where bacteria finish breaking down any organic wastes in the discharge.

While theoretically a septic tank can go forever, generally sludge will build up so that it has to be cleaned out from time to time. Since, during a crisis, the owner of a septic tank should be prepared to do the "dirty work" himself, it is wise when installing a septic tank to place an extra large cleanout opening over each chamber in the top of the septic tank. These will allow the tank to be cleaned manually. Be

sure that this opening is secured so that the uninformed and curious can't accidentally open the tank up and fall in.

The size for a septic tank depends on the number of people using it. To increase capacity, only the length and width should be altered since the depth is critical for bacterio-action. Ideally the depth of liquid in the tanks should be four feet with a foot of air space over it. Capacity for a septic tank should be at least 10 to 15 cubic feet per person using the system. Septic tanks are generally constructed of concrete.

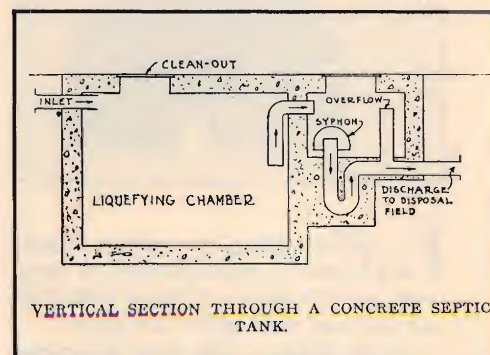
A septic tank empties its processed water into vitrification beds. Many modern vitrification beds are buried in the ground; while bacteria in the earth are capable of breaking down the organic matter in discharge water, there is also some danger of contaminating ground water with this method.

To be on the safe side with an underground discharge vitrification field, the following test should be conducted: first dig down two feet into the area where the underground vitrification field will be placed. Next, pour water into the hole to a depth of six inches and time it as it seeps into the earth. Now divide the time by six (to determine the average time it takes one inch of water to sink into the earth) and use this rate of change to find the square feet of area to be covered by the vitrification field:

Sewer Lines—Since the Roter Rooter man won't be making house calls during a nuclear war or the like, it is wise to have sewer lines leading to and from a septic tank or cesspools placed well away from trees so that the system won't get clogged up with roots. For a minimal pipe run, it is also possible to build a "privy" directly over a septic tank.

Both septic tanks and cesspools use living bacteria to break down the household wastes entering them. The less air getting into the system, the better the bacterio-action in a cesspool and in the first tank in a septic tank. Also, many

(Continued on page 59)



This septic tank uses a 19th century design that probably worked well but was more complex than was needed. Note the large cleanout covers on each chamber.

Military Rations:

Freeze-Dried Meats, Fruits

1986 contract MRE rations from SI . . .

Staff Report



Military freeze-dried fruit (strawberries), left, and beef (shown here) or pork patties are light, tasty and store for years.



ABOVE—Military fruit bar rations are available in pouches—Strawberries, peaches, pears and mixed fruit bars.

LEFT—SI has both individual beef and pork patties in vacuum-sealed pouches or beef and pork patty pieces in vacuum-sealed cans.

IF you're looking for military freeze-dried foods in sealed pouches or cans, check out SI's supply of freeze-dried fruit and beef and pork patties and pieces.

SI just bought 1,500 cans of popular military beef and pork patty pieces in #10 cans. These are broken patties from the 1986 contract and are as fresh as you can

get with this type of storage food. There are six cans per case packed in heavy duty #10 cans for longest possible storage. Three cases of either meat cost \$179 plus \$22 shipping and handling, or get five cases for \$255 plus \$33 S&H, or 10 cases for \$450 FC, or 25 cases for \$995 FC. If you prefer, SI also has individual pouches

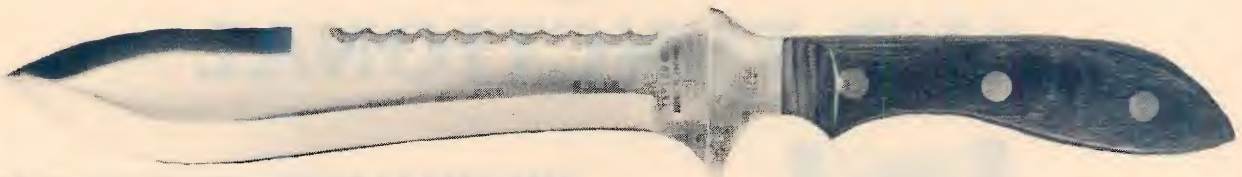
of whole beef and pork patties—also from the 1986 contract—for sale.

Additionally, SI is offering 1986 military strawberry freeze-dried fruit rations. These are real strawberries in light syrup. They come in 25-bar packs for \$10.50 plus \$1.55 S&H; 50 bars for \$19.50 plus \$2 S&H.

Likewise, SI is offering 1986 fruit bar rations of peaches, pears and mixed fruit (peaches, pears, apples, cherries) in the same double-vacuum packed pouches. Like the strawberries, these will store for from seven to 10 years. They are being sold in packs of 36—12 of each type fruit—for \$14.50 per pack plus \$2 S&H, or 72-pouch packs for \$25 plus \$3.50 S&H, 144-pouch packs for \$47.50 each plus \$6.25 S&H, or 975-pouch packs for \$225 each plus \$25 S&H.

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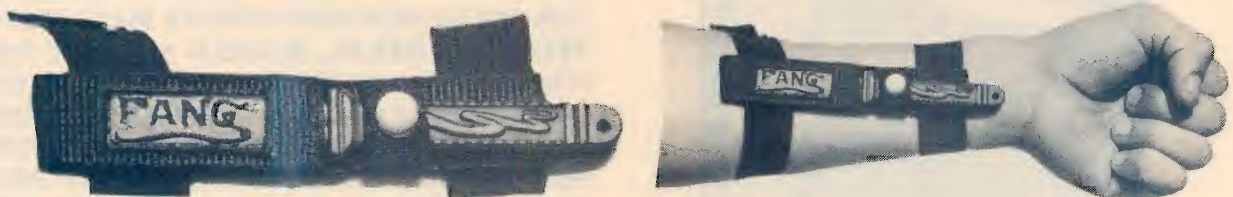
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By Bud Lang



Shown here are four different Chris Reeve survival knives. They are top quality, and are machined from solid D2 bar steel.

THERE are survival knives, and there are survival knives. The units displayed here are unique in many aspects. First of all, the maker, Chris Reeve (6433 Frederick Road, Baltimore, MD 21228), is a native of South Africa, who did duty along the Namibia/Angola border in 1976. He realized at that time that one item was missing from the standard army kit, and that item was a good all-purpose knife. So he set about making one by hand.

A tool-maker by trade, he made a half-dozen more knives before dropping conventional methods, and produced a knife from a solid bar of steel. Samples were given to specialized military units for durability and suitability testing, the results of which were overwhelming.

Today, Chris Reeve offers the soldier, survivalist, hiker, hunter, backpacker and anyone else one of the better survival knives to be found anywhere. In fact,

Reeve offers a full line of knives, all machined from solid steel. No rivets, no epoxy, no handle material to break. We checked out some of these knives, and found them to be very well made. These knives are machined from D2 bar stock, feature a hollow handle for storage of survival materials, and an aluminum butt cap that screws in place, using an O-ring to seal the innards. The knives are finished in Kal-Gard, a matte surface that protects the steel, yet does not cause reflections. Some, as you can see, feature cutting teeth on the back edge.

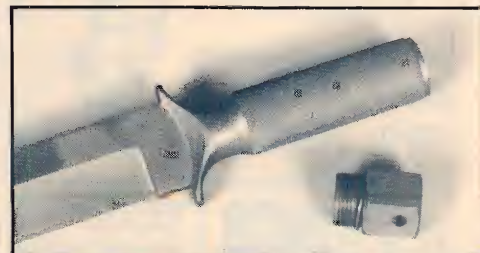
While these are exceptional knives, we tried the teeth of one blade against a hard oak (dried) plank, and it would cut only 1/2-inch into the wood, no more than most other knives we've tested in the same manner. Most manufacturers, including Reeve, claim their knives will cut through sheet metal, such as on an aircraft. If you

have ever cut sheet metal, you know the blade has to have many small teeth, the number determined by the gauge of the metal, and the metal has to be held rigid. Also, few survival knives we've seen feature "saw" teeth, where the points are pitched. Therefore, we feel many may "rip" or be able to hack through metal, but few will actually saw through sheet metal. The same applies to "green" wood. If they can't cut dry wood, how can they cut green wood?

This is the only drawback we found with these fine blades. Depending on the model, these blades are between 4 and 9 3/4 inches long. They also come with very durable leather sheaths. All are heat treated to a Rockwell of 57-58, tough enough for rugged duty, yet soft enough so one can sharpen them quickly. Depending upon the model, these unique one-piece survival knives run between \$149 and \$259 each. Prices may change, however. ●



The Mountaineer is a lightweight hollow-handle utility knife with 4-inch blade. Blade is hollow ground, neoprene O-ring seals butt cap to hollow handle.



All Reeve knives are machined from solid bar stock. Aluminum butt cap is O-ring sealed. Finish is matte, so it won't reflect light.

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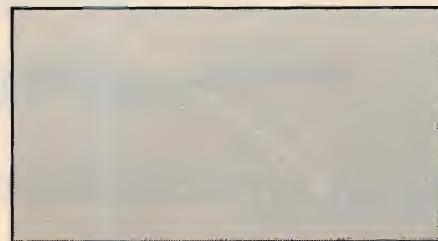
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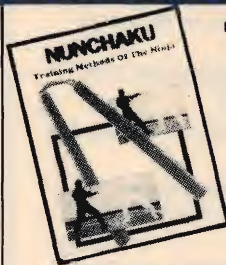
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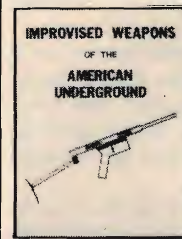
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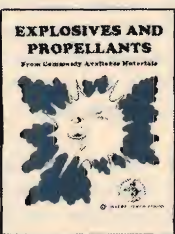
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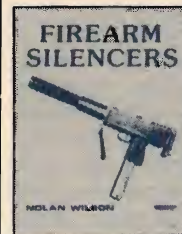
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Prevention, Early Detection, Modern Treatment: Cancer

*How to avoid it, or
survive it . . .*

By Jim Benson

ILLUSTRATIONS COURTESY OF THE NATIONAL
CANCER INSTITUTE . . .

CANCER. After cardiovascular disease, it's the leading cause of death in this country. Some 462,000 people died from cancer in the United States in 1985, according to government estimates.

As with other deadly diseases plaguing humanity, there is no cure at present for cancer, but certain preventive measures can greatly reduce the risks of getting this horrible illness, and early detection and treatment with new techniques is reducing the death rates for various cancers.

And there is more good news. The National Cancer Institute (NCI), part of the U.S. Public Health Service, reported in December that the overall cancer death rate is decreasing among the U.S. population under age 55.

"This decline in the death rate comes in the face of a slow increase in the cancer incidence rate in this age group, and is one of the most encouraging cancer statistics we see this year (1986)," said Dr. Vincent T. DeVita, NCI director.

The cancer death rate for those under 55 decreased 7 percent from 38.2 per 100,000 population in 1975 to 35.7 in 1984. This decline is evident for every age group under age 55, according to NCI figures. It is seen even if lung cancer death rates, which are decreasing among young and middle-aged U.S. citizens, are excluded.

DeVita attributed much of the decline to advances in cancer treatment. He noted that another measure of treatment success—survival statistics—shows gains among those in the under-55 age group.

"People under 55 have a higher overall 5-year relative survival rate for cancer than older patients, indicating that we're being particularly successful in treating these patients," he said. Twenty-four percent of all newly diagnosed cancers occur in persons under 55.

The 5-year relative survival rate (the percentage of patients who survive 5 years after diagnosis of cancer) for patients under 55 for all cancer sites combined is 59 percent. This includes patients of all races and both sexes who were diagnosed with cancer between 1974 and 1983.

Industrial processes and occupational exposures casually associated with cancer in humans:

Auramine manufacture
Boot and shoe manufacture and repair (certain occupations)
Furniture manufacture
Isopropyl alcohol manufacture (strong-acid process)
Nickel refining
Rubber industry (certain occupations)
Underground hematite mining (with exposure to radon)

Chemicals and groups of chemicals associated with cancer in humans:

4-Aminobiphenyl
Arsenic and arsenic compounds
Asbestos
Benzene
Benzidine
N, N-Bis (2-chloroethyl)-2-naphthylamine (Chlornaphazine)
Bis (chloromethyl) ether and technical-grade chloromethyl methyl ether
Chromium and certain chromium compounds
2-Naphthylamine
Soots, tars and oils
Vinyl chloride

Chemicals, groups of chemicals or industrial processes probably carcinogenic to humans with at least limited evidence of carcinogenicity to humans:

Acrylonitrile
Benzo(a)pyrene
Beryllium and beryllium compounds
Diethyl sulphate
Dimethyl sulphate
Manufacture of magenta
Nickel and certain nickel compounds
ortho-Toluidine

Chemicals, groups of chemicals or industrial processes probably carcinogenic to humans with sufficient evidence in animals and inadequate data in humans:

Amitrole
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DDT
3,3'-Dichlorobenzidine
3,3'-Dimethoxybenzidine (ortho-Dianisidine)
Dimethylcarbamoyl chloride
1,4-Dioxane
Direct Black 38 (technical grade)
Direct Blue 6 (technical grade)
Direct Brown 95 (technical grade)
Epichlorohydrin
Ethylene dibromide
Ethylene oxide
Ethylene thiourea
Formaldehyde (gas)
Hydrazine
Phenoxyacetic acid herbicides
Polychlorinated biphenyls
Tetrachlorodibenzo-para-dioxin (TCDD)
2,4,6-Trichlorophenol

"Colon cancer death rates for all ages combined are also decreasing in spite of an increasing incidence rate," DeVita said. The 5-year relative survival rate for colon cancer increased from 49.5 percent for patients diagnosed between 1974 and 1976 to 52.6 percent for patients diagnosed

between 1977 and 1983.

But there are also the bad statistics—increases in the incidence rates for different cancers have generally continued to slowly increase for people of all races and both sexes, according to the NCI figures.

Cancer Control Program—Last Oct. 29, NCI issued plans for the prevention and control of cancer that could cut the annual death rate by as much as 50 percent by the year 2,000. The plans are detailed in the NCI report *Cancer Control Objectives for the Nation: 1985-2,000*. The plans were developed with assistance from panels of scientific experts. The plans build on national objectives for disease prevention established by the Department of Health and Human Services.

NCI has determined that this goal of reducing the overall cancer death rate by as much as 50 percent can be achieved by aggressive application of existing knowledge about cancer prevention, screening, early detection, and treatment and through application of the gains in knowledge in treatment and prevention that are expected over the next decade.

The preventive objectives focus on the reduction of smoking, which is responsible for some 30 percent of all cancer deaths, and on diet, which is associated with several cancers, including colorectal cancer, the second leading cause of cancer deaths after lung cancer. The screening objectives relate to cervical and breast cancer, both of which have excellent prognosis if detected early. The treatment objectives target figures for 5-year relative survival for various cancers, figures that should be attainable on the basis of existing knowledge derived from clinical research. The report includes recommendations for actions on the part of governments, the medical professions, and professional and voluntary organizations to help maximize the impact of existing knowledge.

In 1985, it was estimated that 910,000 Americans would develop cancer and that 462,000 would die from it. Yet many cancers can be prevented through changes in lifestyles, especially through reduced use of tobacco and improved dietary habits.

Tobacco—Tobacco is associated with about 30 percent of all cancer deaths—more than 130,000 deaths per year. Smoking is a major cause of lung cancer and of numerous other types of cancer, including laryngeal, esophageal, and bladder cancers.

Some 54 million Americans—one in three adults—smoke daily. Those who smoke two packs a day or more face a lung cancer death rate that is 20 times higher than that of nonsmokers. Rates for lung cancer have increased dramatically over the past 30 years for both men and women. Yet cancer risk returns to normal within 15 years after stopping smoking for all smoking-induced cancers. Since it takes 15 years for full return to normal risk after an

individual quits smoking, it is vitally important that smokers quit as soon as possible. Today, more than 100,000 youths age 12 and under are habitual smokers, and more start smoking every day.

Diet—Approximately 35 percent of today's cancer deaths may be related to diet. Based on current knowledge, NCI estimates that, at a minimum, 30,000 lives could be saved in the year 2,000 if Americans would modify their dietary habits. The National Academy of Sciences (NAS) has recommended that the American diet should be changed to reduce fat to 30 percent of total calories and to include fruits, vegetables, and whole grains daily to raise fiber consumption.

A convincing group of studies on animals and humans provides evidence that foods containing fiber have a protective effect against colorectal cancer. Additionally, a National Institutes of Health conference on cholesterol and heart disease noted that a low-fat diet is important in reducing heart disease and should simultaneously lower risk of both cancer and heart disease.

The objectives are: reduce average consumption of fat from 37-38 percent to about 30 percent of total calories; increase average consumption of fiber from fruits, vegetables, and whole grains to 20 to 30

grams per days, with an upper limit of 35 grams daily.

In 1982, the National Research Council's Committee on Diet, Nutrition and Cancer, issued its *Interim Guidelines Recommended for Reducing Cancer Risks Through Diet*. In general, the committee suggested that Americans: eat less foods high in saturated and unsaturated fats; eat fruits, vegetables and whole-grain cereal products daily, especially those high in vitamin C, carotene which converts in the body to vitamin A, and other as yet unidentified compounds that may protect against certain cancers (These foods include oranges, grapefruit, dark green leafy vegetables, carrots, winter squash, tomatoes, and vegetables of the cabbage family such as cabbage, broccoli, cauliflower and brussels sprouts); eat very little salt-cured, salt-pickled, and smoked foods such as sausages, smoked fish and ham, bacon, bologna and hot dogs; and drink alcohol only in moderation.

The committee said that frequent consumption of foods containing vitamin A-producing carotenes or vitamin C, or of vegetables in the cabbage, or cruciferous, family, can reduce susceptibility to cancers of the urinary bladder, large bowel, skin, lung, stomach and esophagus. Studies show that vitamins A and C and some non-nutritive chemicals in cruciferous vege-

tables inhibit the formation of cancer-causing chemicals and reduce cancer susceptibility.

The committee noted that some epidemiologic and laboratory data suggest that the mineral selenium may protect against some cancers. However, it noted that selenium is toxic in high doses and that data were too limited to draw firm conclusions about selenium's protective potential. Studies are continuing on selenium and other possible and known cancer protective agents in the diet.

Scientists are still not sure, the committee said, whether it is the vitamins themselves, the carotenes, or other nonnutritive compounds occurring naturally in certain vegetables and fruits that help protect against cancer in humans. For this reason and because nutrients such as vitamin A and the mineral selenium can be toxic in concentrations higher than needed for optimum nutrition, the committee recommended that people eat citrus fruits, carotene-rich (dark green and deep yellow) and cruciferous vegetables daily, rather than take high-dose nutrient supplements.

The committee's recommendation to eat less salt-cured, salt-pickled and smoked foods stemmed from higher incidence of esophageal and stomach cancers in parts of China, Japan, and Iceland where such foods are eaten regularly. These foods may

Five-Year Relative Survival Rates for All Races Combined¹, Both Sexes, Diagnosed During the Years:

Cancer Site	1974-76	1977-83
Oral cavity and pharynx	53	50*
Esophagus	5	6
Stomach	15	17*
Colon	50	53*
Rectum	48	50*
Pancreas	3	3
Larynx	65	66
Lung	12	13*
Melanoma of the skin	79	80
Breast (females)	74	74
Cervix	68	66
Endometrium (corpus)	88	83*
Ovary	36	38*
Prostate	66	70*
Testis	78	89*
Bladder	72	75*
Kidney	51	50
Brain	22	23
Hodgkin's disease	71	73*
Non-Hodgkin's lymphoma	47	48*
Leukemia	33	33

*The difference in rates between 1974-1976 and 1977-1983 is statistically significant.

¹Data by site for all races combined were not available until 1973.

Cancer Control Objectives

Control		Rationale	Year 2000 Objectives
Action	Target		
Prevention	Smoking	The casual relationship between smoking and cancer has been scientifically established.	Reduce the percentage of adults who smoke from 34% to 15% or less.*
			Reduce the percentage of youths who smoke by age 20 from 36% to 15% or less.*
Screening	Diet	Research indicates that high-fat and low-fiber consumption may increase the risk for various cancers.	Reduce average consumption of fat from 37%-38% to 30% or less of total calories.*
			Increase average consumption of fiber from 8-12 to 20-30 g/day.*
	Breast	The effectiveness of breast screening in reducing mortality has been scientifically established.	Increase the percentage of women ages 50-70 who have an annual physical breast examination coupled with mammography to 80% from 45% for physical examination alone and 15% for mammography.
	Cervix	The effectiveness of cervical screening reducing mortality has been scientifically established.	Increase the percentage of women who have a Pap smear every 3 years to 90% from 79% (ages 20-39) and to 80% from 57% (ages 40-70).
Treatment	Transfer of research results to practice	Review by NCI of clinical trial and NCI's SEER Program data indicates that, for certain cancer sites, mortality as shown by SEER data is greater than that experienced in clinical trials.	Increase adoption of state-of-the-art treatment.

*The opportunity for a 50% reduction in overall cancer mortality by the year 2000 would be enhanced if these targets were achieved by 1990. (See Appendix B of *Cancer Control Objectives for the Nation: 1985-2000*, NCI Monographs, No. 2)

be contaminated by the polycyclic aromatic hydrocarbons in smoke or by the N-nitroso compounds (such as nitrosamines) formed from nitrite used in curing processes. Both types of compounds cause cancer in laboratory animals and are suspected of causing cancer in humans.

Excessive alcohol drinking, especially in combination with cigarette smoking, the committee said, appears to increase the probability of cancers of the mouth, larynx, esophagus and respiratory tract, and may be linked with colon and rectal cancer.

The committee found the strongest evidence for a connection between cancer and consumption of fats. Both epidemiological and laboratory studies have shown higher rates of cancers of the breast, large bowel, and prostate in populations that eat foods containing large amounts of both saturated and unsaturated fats. These studies also show that eating less fat is associated with lower incidence of these cancers.

The committee termed its recommendations "interim guidelines" that could change as scientists learn more about how certain substances in foods may initiate, promote, or protect against cancer at different sites in the body. "It is not now possible and may never be possible to specify a diet that protects all people against all forms of cancer," the committee noted.

Screening And Detection—Early detection and treatment for most forms of cancer afford a much greater chance for survival than do detection and treatment at later stages, according to the NCI cancer control report. NCI's screening and detection objectives target breast cancer and cervical cancer in which there is scientific consensus of proven effectiveness in reducing mortality. A major study has shown that mammography and physical breast examination can reduce mortality from breast cancer by 30 percent in women over 50. For women between 20 and 70 years of age, Pap smears, long known to be effective for detecting cervical cancer, can reduce deaths from cervical cancer by up to 75 percent. Accordingly, NCI's objectives for screening and detection are to: increase the percentage of women ages 50 to 70 who have an annual physical breast examination coupled with mammography to 80 percent from 45 percent for physical examination alone and 15 percent for mammography; increase the percentage of women who have a Pap smear every 3 years to 90 percent from 79 percent (ages 20 to 39) and to 80 percent from 57 percent (ages 40 to 70).

Cancer Treatment—Successful treatment of a number of cancers, such as Hodgkin's disease, melanoma, testicular

cancer, and childhood cancers, reflect improved diagnostic and treatment capabilities. For example, in 1960 only 40 percent of patients with Hodgkin's disease survived for more than 5 years, while the latest results, based on improvements in chemotherapy and radiotherapy, are 74 percent.

Effective application of state-of-the-art therapies could possibly reduce cancer mortality by 10 to 20 percent of 1980 levels and by another 10 percent through gains in treatment that may occur during the next 15 years, for a total of 30 percent by the year 2,000. NCI's treatment objectives are to: increase adoption of state-of-the-art treatment; continue to advance treatment, as reflected in increasing cancer survival.

Risk Factors—There are numerous known and suspected risk factors in our environment and lifestyles which may increase our chances of getting certain types of cancer. Following is a brief discussion of risk factors other than those which have already been discussed above.

AIR POLLUTION: There is little evidence to date that ambient air—the circulating air around us—poses serious cancer risks. The ambient air in specific areas may contain industrial plant emissions, automobile exhaust, and other pollutants linked to cancer, but in most places, the air we breathe does not contain high levels of carcinogens (cancer-causing substances).

WATER POLLUTION: Drinking water contains complex mixtures of known and suspected carcinogens including asbestos, metals, radioactive substances, and industrial chemicals. Even the process of treating water may create small quantities of chemicals linked to cancer, but the levels are so small that there is probably a low risk, if any, associated with most drinking water supplies. Trihalomethanes, or THMs, can be formed when chlorine

used to purify drinking water reacts with organic compounds in water. At levels normally found in chlorinated city water supplies, there is some suspicion that THMs may increase the risk of gastrointestinal and urinary tract cancers. THMs are also used as indicators of more hazardous compounds that are difficult to measure directly. To reduce the levels of THMs, water is often filtered so that less chlorine is needed to purify it. The U.S. Environmental Protection Agency is constantly monitoring air and water supplies for carcinogens and NCI scientists have been studying the possible link between drinking water and cancer. To date, the evidence suggests that except for some drinking water supplies containing unusually high levels of carcinogens, our drinking water now poses little cancer risk to us.

ALCOHOL CONSUMPTION: Consumption of alcoholic beverages increases the risk of cancer, particularly of the mouth, pharynx, larynx, and esophagus. Alcoholic drinks are often flavored with cogeners—chemical compounds or contaminants produced during fermentation, and many people who drink also smoke. It is difficult to evaluate the role of drinking alone. But there is no doubt that drinking and smoking together have a synergistic, or combined, effect, and do contribute to the high incidence of some cancers.

OBESITY: Obesity or being overweight, has been associated with increased cancer death rates in animals in a number of studies over the past 45 years. It is also suspected that obesity is associated with some cancers in humans, particularly those of the prostate, pancreas, breast and ovary.

DRUGS: The development of "miracle" drugs that effectively treat a variety of illnesses has been one of medicine's major achievements. Unfortunately, when chemically altering or arresting the course of one disease, these drugs can contribute

Estimated Reduction by Year 2000 in Cancer Mortality Rate

Objective	Estimated Reduction by Year 2000 in Cancer Mortality Rate (percent) Based on Achievement of the Objective
Prevention: Diet Fat reduction to 30% of total calories and Fiber increase to 20-30 grams per day	8
Prevention: Smoking Reduction in adult smoking prevalence to 16%	8-15
Screening ² Breast and cervical cancer objectives	3
Treatment Wide application of current state-of-the-art treatment and continued advances in treatment	26
Total range ³ of mortality reduction (percent)	25-50

¹Reduction is calculated from the projected year 2000 rate.

²Females only.

³Range accounts for interdependence of objectives, e.g., the effect of breast cancer screening is reduced due to prevention.

to the development of other diseases, including cancer. Estrogenic hormones, immunosuppressive agents, and, ironically, anticancer drugs designed to kill tumor cells are the classes of drugs most often linked to human cancer. Drugs are believed to account for fewer than 2 percent of all cancers. When deciding to use drugs, the informed patient and physician must carefully weigh the benefits of a medication against its possible risks. Other drugs, such as radioactive drugs used to treat bone tuberculosis, thyroid cancers and the blood disorder polycythemia vera, and certain pain-killing drugs have been linked to forms of cancer.

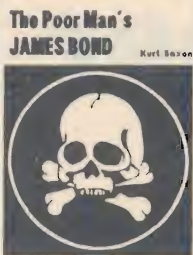
FAMILIAL FACTORS: Most cancers are caused by a variable mix of hereditary and environmental factors. Some rare cancers are inherited, and usually appear at an early age. A number of rare hereditary disorders may predispose a person to cancer but the added action of one or more environmental factors is often needed for the cancer to develop. Other individuals seem to be resistant to some cancers. Subgroups of some of the common cancers have a genetic component but may also require an environmental trigger. Some nonhereditary cancers seem to run in families, but this may reflect chance or a common environmental exposure. How a person reacts to his environment is also a part of the equation.

IONIZING RADIATION: This is a known cause of cancer, and of other adverse effects as well. It is one of the most extensively studied human carcinogens and may account for about 3 percent of all cancers. Ionizing radiation is able to remove electrons from atoms and to change the molecular structures of cells. It is these cellular changes that may cause cancer to develop. The genetic DNA in the cell nucleus is thought to be the critical target for radiation-induced damage. Some radiation comes from natural sources, like that from cosmic rays and from radioactive substances in the earth's crust. Each of us is exposed to this "background" radiation at a rate of about 0.1 to 0.2 rad per year. Reducing exposure to unnecessary medical X-rays is one of the best ways to reduce exposure to ionizing radiation. In many instances, though, the benefits outweigh the risks, as in mammography for some women, as a tool for diagnosis of various diseases and injuries, and as a way to treat some cancers.

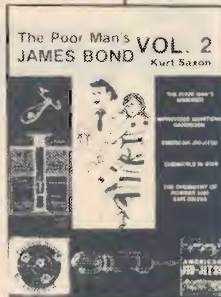
OCCUPATION: There have been a number of workplace substances linked to cancer. In this age of chemicals, metals, plastics and fibers, we all run the risk of exposures to industrial carcinogens in our air, water, food and homes. But the exposures of the industrial worker may be intense and prolonged. Since 1971, the International Agency for Research on Can-

(Continued on page 63)

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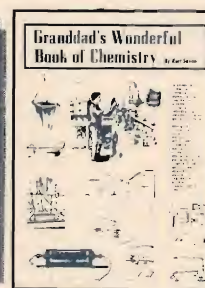
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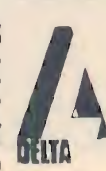


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Clearly, the arguments made by those who think the manned bomber has outlived its usefulness have had little effect on Soviet military planners . . .

By Michael Pietrantonio

PHOTOS COURTESY OF ROCKWELL INTERNATIONAL

The manned bomber is obsolete."
"Cruise missiles are cheaper and can do the job better."

"Soviet air defenses are becoming so good that manned bombers have very little chance of reaching their targets."

These are some of the arguments made by opponents of the B-1 bomber program during its decade-long off-again, on-again history.

The B-1 can quite rightly be called the plane that could not be shot down. Despite repeated efforts by Congress, and the outright cancellation of the program by President Carter in 1977, both Rockwell International (the prime contractor), and the Air Force refused to give up on the B-1. The perseverance by those who believed in the program was rewarded, when in October 1981 President Reagan announced the resumption of the B-1 program and committed the Air Force to the purchase of 100 B-1B bombers by the end of 1988. The first operational B1 was delivered to the Strategic Air Command in June of 1985. Current production is approximately four planes per month, at an average cost of \$210 million each.

Even as the last B-52 was rolling off the

production line in 1962, the Air Force was studying plans for the next generation of manned bomber. In 1964 the prototype for that bomber was unveiled. The B-70 was at the time the most advanced bomber in the world. It was capable of speeds up to 2,000 miles per hour and flew as high as 74,000 feet.

In 1967 the B-70 project was scrapped by Defense Secretary Robert McNamara who was opposed to the manned bomber concept. McNamara and other critics noted that Soviet surface to air missile (SAM) technology had reached the point where high altitude bombers, no matter their speed, were vulnerable targets.

The Air Force went back to the drawing board, and in 1970 awarded a contract to Rockwell to build five prototype B-1 bombers. The key feature of the B-1 was its ability to penetrate Soviet airspace under the Soviet SAM umbrella.

During the 1970s the program became the focus of debate over the entire concept of a manned bomber force. Eventually the program was cancelled by President Carter, only to be revived again in its current (B-1B) configuration by President Reagan four years later.

The United States relies on a triad of strategic systems for its nuclear deterrent. This triad consists of land based intercontinental ballistic missiles (ICBMs), submarine launched ballistic missiles (SLBMs), and manned bombers carrying both nuclear tipped air launched cruise missiles (ALCMs) and conventional gravity type nuclear bombs. Of the systems composing the triad only the bomber element possesses any degree of flexibility. Once a nation launches either its ICBM or SLBM forces that nation is committed to war. Missiles cannot be recalled once fired.

Manned bombers on the other hand can be launched either as a means to insure their survival, or more importantly as a show of force or intent during an escalating crisis. They can of course be recalled at any time prior to the completion of their mission should the situation warrant such action. Since the bombers are manned and are not locked into a set of pre-programmed instructions, they have the ability to react immediately to changing conditions. They can be redirected to alternate targets after they have been launched, and can take advantage of targets of opportunity which may present themselves.

The manned bomber is designed with survivability among the top criteria, and is thus a reusable launch platform, capable of performing a wide range of strategic and conventional missions.

The utility of manned bombers was recently demonstrated in the Falklands war. The British Royal Air Force used long range Vulcan bombers, normally assigned a strategic nuclear role, to bomb the airfield at Port Stanley and render its runways useless to Argentine aircraft. The bombers flew directly from Ascension Island to Port Stanley some 3,800 miles away.

Despite the arguments made by the critics of the manned bomber, its future role in both nuclear and conventional operations seems secure.

The B-1B—The B-1 is designed to take over the long-range penetration role once assigned to the B-52. There are still more than 250 B-52s assigned to the Strategic Air Command. They serve primarily as stand off cruise missile launch platforms. This role will be taken over by the B-1B sometime during the 1990s as the "Stealth" or Advanced Technology Bomber, ATB, comes on line and assumes the B-1 penetration role.

Carrying some 125,000 pounds of weaponry the B-1 presents a formidable threat. Mounted in three internal weapons bays and at points under its belly, the B-1 can carry weapons loads of up to 38 individual free fall nuclear bombs or the same number of short-range attack missiles (SRAMs). In its future role as an air launched cruise missile platform each B-1 will be able to deliver 22 cruise missiles to their targets. When configured as an ALCM launcher some of the missiles will be carried in an internal rotary launcher, similar in action to the cylinder of a revolver. For conventional bombing missions the B-1 can carry up to 128 500-pound high explosive bombs.

The Stealth bomber has been the focus of much discussion recently. This highly classified project will eventually result, many experts predict, in an aircraft of radically different design and appearance than the B-1 and other conventional aircraft. Elimination of sharp angles from the fuselage, and the use of non-protruding control surfaces will probably result in a "flying-wing" type aircraft. The structural changes are designed to reduce or eliminate the radar cross section of the aircraft.

While the B-1 does have the fuselage and control surfaces of a traditional aircraft, it also has incorporated a number of features that are expected to be used on the Stealth aircraft. For example, when the original B-1A was redesigned into the present B-1B model, the engines were moved inside the airframe, the engine inlets were redesigned and protrusions on the fuselage were removed. Special radar absorbent coatings, first pioneered by the German Navy in WW2, were also applied



The B-1B, with wings swept back for speed, begins a low level approach exercise over terrain similar to the northern approaches to the Soviet Union.



View from the cockpit of the B-1B. Because of extensive use of computers, the B-1B needs only a four-member crew. Shown here are the pilot's and copilot's stations.



At 200 feet the B-1B begins a 600 mph attack run over desert terrain with wings swept back to their maximum 67-degree angle.

to the aircraft in order to lesson the radar reflectivity of the B-1.

Visibility of an aircraft on radar is measured by its radar cross section, RCS. The

smaller the RCS the more "invisible" the plane. Current state of the art military radars can detect an object with an RCS of approximately one square meter at

Super Bomber

RIGHT & BELOW—The B-1B can remain on full alert for hours. The first arriving crewman needs only to throw a single switch to activate systems required for rapid takeoff.



distances in excess of 200 miles. The B-52 has an RCS of 100 square meters, which makes it very easy to locate by radar. In contrast, the RCS of the B-1B is less than one-percent that of the B-52—less than 1 square meter.

In addition to its small RCS, the B-1B carries extensive electronic countermeasure systems to jam and confuse enemy radar. More than 100 electronic "black boxes," some 5,000 pounds of hardware, allow the computers in the B-1 to automatically respond once enemy radar signals are detected.

During a deep penetration mission into the Soviet Union the B-1 can be expected to encounter more than 100 differing types of Soviet radar. To counter the threat the computers onboard the B-1 are able to analyze each radar signal and compare it with patterns stored in memory in order to assess the threat posed and assign a priority for countermeasures. The system will then select the best possible method of jamming the assessed radar signals and begin jamming those that present the greatest threat. The B-1 defensive systems are able to jam many differing radar signals simultaneously. Should the B-1 systems become overloaded they will automatically concentrate their jamming efforts on those radars posing the highest priority threats. As the B-1 passes out of range of a particular radar its defensive computers automatically move on to those radars coming within range.

Range—While the exact range of the B-1 is classified, it is acknowledged to be capable of unrefueled, roundtrip, intercontinental missions. Estimates of the range of a fully loaded B-1 fall between 6,000 and 7,500 miles.

Weighing some 477,000 pounds when fully loaded, the B-1B is heavier than

originally planned. Some of the added weight is accounted for by the strengthening of the airframe and the addition of electromagnetic pulse (EMP) resistant avionics. While the extra weight somewhat reduces the speed and range of the B-1, it also increases the survivability of the aircraft in the nuclear environment in which it will be flying.

Maximum speed of the B-1 is reported to be Mach 1.2 (approx. 850 mph), though low-level attack speed will be around 600 mph.

During a bombing run the B-1 will come in as low as 200 feet. Using terrain avoidance and terrain contour matching radars, the B-1 is literally able to fly itself to its target, using its onboard sensors and computers. Using the enemy landscape as "camouflage," the B-1 can fly low enough to defeat any enemy missiles or aircraft equipped with "look-down" radar capability.

Because of the extensive use of computers throughout the aircraft, the B-1 requires only a four-man crew. The crew includes the pilot, co-pilot, and defensive and offensive systems operators.

A unique feature in the cockpit of the B-1 is a transparent ceramic windshield. This windshield panel is able to turn completely opaque in microseconds in response to the intense light generated by a nuclear blast. This feature is designed to protect the crew from being blinded by the flash of nuclear detonations.

A bomber is of no use if it can't get off the ground quickly enough to avoid an incoming attack. This need is met by the B-1's ability to stand at full readiness for extended periods of time. All that is required to ready the B-1 for takeoff during an alert is that the first arriving crewman throw a switch in the nose landing gear compartment. This switch activates

the engines and onboard systems needed for takeoff.

The B-1 uses variable geometry (moveable) wings which allow it to use a much shorter runway for takeoff and landing than the B-52. The variable geometry wings are designed to pivot on 20-inch diameter titanium alloy pins. For takeoff and routine flight the wings of the B-1 are extended to their maximum 15-degree angle. For supersonic flight and low altitude bombing runs the wings will be swept in against the fuselage at up to a 67-degree angle.

The Future—Although the Air Force maintains that it has no plans to procure any more than the 100 B-1s authorized by President Reagan, some members of Congress have suggested that an additional 24 aircraft be purchased. These planes would be used, according to Congressional sources, in an anti-ship role. They would be targeted against Soviet surface ships which were beyond the range of U.S. carrier-based aircraft.

Though company spokesmen have not confirmed it, sources indicate that Rockwell is working on a "C" or even a "D" version of the B-1. These updated versions will have an even greater Stealth capability than the current B-1B. It is likely that the final versions of the B-1 will be electronically similar to the first Stealth bomber, at least in ability to deceive enemy radar.

Stealth is not scheduled to come into the U.S. inventory until the early 1990s. This time frame however, may be optimistic. Those who oppose the use of manned bombers can be expected to apply the same arguments and delaying tactics that were used against the B-1. Should this occur, the B-1 will take on an even more important role than that of "transition aircraft" between the B-52 and Stealth. The B-1 may well become the primary manned strategic deterrent of the U.S. through the decade of the 1990s and perhaps even into the next century.

It should be remembered that while some U.S. politicians debate the effectiveness of manned strategic bombers, the Soviets continue to produce their "Backfire" strategic bombers at a rapid pace. They currently number well over 400 aircraft. Further, it appears that yet another Soviet bomber, code-named, "Blackjack," almost a duplicate of the B-1, may soon begin production. Clearly, the arguments made by those who think the manned bomber has outlived its usefulness have had little effect on military planners in the Kremlin. ●

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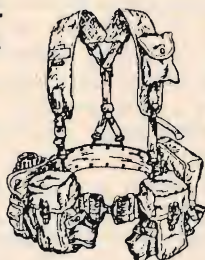
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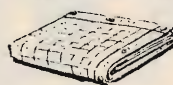
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By Carl E. Krupp



Artist's conception of a LANDSAT spacecraft in flight. If a nuclear device disguised as a satellite exploded over the U.S. at an altitude of from 150 to 300 miles, the EMP would cover much of the country (courtesy of NASA).

EMP, electromagnetic pulse, is the enormous radio spectrum energy given off whenever an atomic weapon is detonated.

In ground and low air bursts, the pulse is limited to an area similar to the destruction area of the device, so it is not considered as a special threat, but if the device is exploded in near space, EMP can cause widespread electronic failure. For example, if a device disguised as a weather satellite exploded over the center of the continental United States, and at an altitude of 150 to 300 miles, the EMP would cover much of the country. Since it is well known that both the USSR and the U.S. have such satellites in orbit, the possibility of such an EMP attack is not remote.

For the last 30 years the military has been considering ways to "harden" their equipment so it would be less affected by EMP. Often this is done by using fiber optics instead of electrical circuits and copper wire, because the wire acts as an antenna to pick up the pulse, whereas the light traveling down the fiber optic is unaffected. Combined with proper shielding, almost any circuit can be hardened to withstand the near-miss of an atomic device.

But how about us? Could we also keep at least some of our equipment working after an EMP strike even though commercial power would be severely damaged? The answer is clearly yes, but only with some effort.

Automobiles—Those little black boxes that have been responsible for such wonderful gas mileage in the family car are full of semiconductors that will cook with the first EMP strike. In order for a car to continue to operate you must choose an earlier model with points and condensers, but even that is a little uncertain, because a very near EMP strike might still fry the ignition coil.

The real answer is a fully mechanical diesel engine, available in a host of vehicles, such as the Volkswagens, GMC, Ford and Chevy trucks. The key question to ask the service manager, not salesman, is, "Does this vehicle have *any* electronics?" If the answer is "Yes, but . . ." forget that model vehicle! By the way, if you feel you need an excuse for the question, tell them you are putting a very large radio transmitter into the car. Several manufacturers will not honor their warranty on the car if a transmitter larger than just 5 watts is installed in the car—that's how sensitive the electronics have become. Imagine an electromagnetic pulse in tens of thousands of watts range, and the damage it could do!

You might wonder why the federal government is not concerned with the auto industry building cars that are sure to stop in the event of nuclear war.

For some reason, they are interested only in keeping the commercial long-distance trucks and their military vehicles on the road. They realize that the vast majority of trucks are diesel and would run just fine. Their own military hardware is either diesel or hardened ignition gas . . . so they also would run.

Perhaps they realize that it would be better for them if civilian cars didn't run, so they could get them off the road and out of their way!

Radios—Since EMP acts like a giant, super-powerful radio pulse, it stands to reason that it would destroy radios, which it does, but only if it gets to them, principally through long wire antennas. The key, then, is either to disconnect the antenna when not needed or to put a protective device on the antenna similar to those used for lightning protection, but operating much more quickly so that it would also protect the radio from EMP. Such a device is offered by Alpha Delta Communications, Dept. ASG, P.O. Box 571, Centerville, OH 45459, telephone (513) 435-4772. Called the Transi-Trap

model R-T, useable on transmitters with power of up to 200 watts, and selling for \$29.95 plus \$2 shipping, the device is a high-speed lightning arrester that will divert an EMP strike to ground before it can damage the radio. A smaller model for small transmitters or receivers is the model L-T, selling for \$19.95 plus \$2 shipping. So far as we can tell, this is the only company offering this basically military hardware to the general public, though most of their advertising is aimed at Ham radio operators looking for better protection for their equipment from near lightning strikes.

Small, battery-operated portable radios with built-in antennas, along with high frequency radios with antennas shorter than 18 inches, are relatively safe and can be made fully safe by storing them in shielded containers, such as metal ammo cans, or in underground rooms such as root cellars, deep basements or fallout shelters.

Freezers, Well Pumps, Other 110-Volt Equipment—Most appliances that have



Protection from EMP is provided to commercially powered appliances by the Alpha Delta ACTT AC Transi-Trap.

motors share one feature, they plug into commercial power. For them, the danger is that the pulse would travel down the power line, which acts as a giant antenna, and destroy the motor with a several-thousand-volt, several-thousand-ampere surge. Alpha Delta offers a surge protector that is fast enough to handle EMP strikes, not just the normally slower surges that computer owners have always had to filter out of their power lines. Known as the model ACTT AC Transi-Trap, it sells for \$29.95 plus \$2 shipping.

For fuller security, it would help if the power line coming into your home were buried, as it is likely that the surge would break down the underground wire and short to ground even before entering the house. By placing ACTT direct plug-in protectors in the wall outlets of critical equipment you can almost guarantee that the equipment will survive. Once you have a list of important items, you probably will find you need only a couple of ACTTs to protect your key equipment. Our radios, freezers and well pump—all commercially powered—were protected for under \$200.

Computers—We live in the computer age, but would lose 95 percent of them with the first EMP strike! Only military and specially hardened computers would survive. That alone is reason enough for you to harden yours. A Transi-Trap ACTT on the power line will protect it from the incoming surge. Shielding the computer, itself, will protect the components, which are very sensitive to EMP. Unfortunately, we also live in the age of plastic, which offers no shielding at all. Keeping the computer in a steel case would offer a measure of protection, except when you had it out for use.

The only real answer is to shield the room area, such as a basement or shelter. In the case of a basement, all that is needed is to staple copper wire to the ceiling above and solder a heavy bus wire to each copper screen and fasten the bus wire to a ground rod. Make sure that all windows are also shielded with grounded screen. If the computer can be located totally underground, such as in a shelter, then only the incoming commercial power must be filtered to fully protect the unit.



Antenna leads can be protected from EMP by the Alpha Delta Transi-Trap R-T.

Tractors and Rototillers—Like cars, most have electronic ignition and would stop running at the first pulse. But the good news is that there are some models of almost all manufacturers that still have points and condenser ignition, and they will run unless very close to a strike. If you are not sure whether your equipment has electronic ignition, ask the servicing dealer. If you are buying something new, they will almost always hype electronic ignition. Choose points and condenser instead and be safer! Of course, a diesel tractor would be a perfect solution.

Generators—If EMP strikes, commercial power would be terminated. That enormous pulse will fry all the control computers and many power transformers, including the one near your home. It would take years to restore full electric power, even if the power industry had enough spare transformers, which they don't. Naturally, without commercial power, life as we know it would be a long time returning to normal. For the short term, a small power plant of your own would allow some transition time until you have to do without almost all electricity.

Here again, there are power plants available that do not use electronic ignition and that stay with standard rotating field generators without fancy electronic control circuits. Stay with these and you will have the power you counted on.

Solar Power—While the panels, themselves, would survive, only protected battery chargers that are plugged into commercial power will survive, and if they fail, they would burst the batteries, destroying the system. One answer is to go straight solar, leaving off the common commercial power back-up charger so often used. The other weak link is the inverter used to take the battery output and convert it to 110-volt or 220-volt power. If possible, avoid this step and use the current directly from the battery, keeping all wiring short and buried if possible. If this is not possible, shield the inverter and filter all incoming and outgoing leads with Transi-Trap units. This may seem like a lot of trouble, but what use is a back-up power source if it will fail at the same time commercial power is going to fail!

Looking To The Future—When shopping for a new appliance or some electric-powered equipment, look at it with an eye to protecting it from EMP. Those fully electronic cameras, so popular today, would surely fail with the first pulse. A camera that doesn't require a battery would at least take a picture until all remaining stocks of film are so irradiated that they won't make an image.

In general, staying with lower-tech, rather than high-tech products, makes it easier to assure that some of today's lifestyle and stored information would survive.

ESI:

Women Bodyguards

Firepower is one very effective equalizer . . .

By Morgan Tanner

PHOTOS BY DAVID BJORKMAN



Having passed the basic shooting course, Phyllis Blackburn receives tactical training. Here, ESI President Bob Duggan checks the action while Phyllis defends against assassins and her teammate covers the "client."



ABOVE—Robin Babb takes a crucial timed test while instructor Farnam checks her progress. Her time of 13.8 seconds to draw and shoot 11 steel disks was under the required 15.5.

LEFT—An ESI shooting instructor checks a student's grip on her .38 revolver.

WHILE diamonds may be some girls' best friend, other girls prefer a good handgun. In firearms training at Executive Security International in Aspen, Colorado, women candidates for bodyguard certification learn what men have known for decades: that firepower is one very effective equalizer.

"There is no question that a woman is at a disadvantage in confronting a male who outweighs her 40 to 100 pounds," said Bob Duggan, president of ESI. "But, with training, what makes her equal are her brains and her gun."

When Phyllis Blackburn and Robin Babb joined a class of 15 men at ESI to become certified bodyguards, they received more shooting and tactical training than do most rookie police officers. For 70 hours of shooting instruction, they trained first to beat the clock in timed exercises and then later to whip the "terrorists" who plotted to assassinate their "client."

In the end, both women received better overall scores than did many male students in the comprehensive two-week program which also covers high-speed driving and all phases of executive protection. Babb scored third highest in her class—the highest scoring woman at ESI—and began working as a bodyguard within two weeks of her graduation. But their shooting instructor, master trainer John Farnam, says the women's success isn't unusual.

"Women are easy to teach," he explained. "They are not preconditioned to using force. Whereas men will push

harder if something doesn't work, women will try a different method. They are willing to learn."

On a sagebrush mesa ringed by Aspen's Hollywood star-spangled mountains, Farnam teaches the preliminaries of gun handling. The first step towards superior performance is having proper equipment, he believes. And, selection of guns and holsters is more critical for women than for men. A lightweight gun with a short barrel works best, especially if a belt holster is worn.

Of the four types of handguns, the reliable double-action revolver is Farnam's choice for anyone who shoots only occasionally. Once the mainstay of police departments, it is the most forgiving of marginal owner training. Yet, it is up to any conceivable defensive shooting situation.

Operation is simple: The shooter simply pulls the trigger to fire. A good choice is a .38 Special with a two- to four-inch barrel. Smith and Wesson's J-Frame Model 36 and K-Frame Model are two.

"The double-action revolver is a good gun for a nonenthusiast. It can lay in a drawer for two years and still operate," said Farnam.

The single-action revolver, however, that long-barreled, faithful sidekick of Rogers and Autry in the Old West, is obsolete.

Of the two types of auto loaders, the double-action auto is carried loaded with the hammer down and a live round

chambered. The 14 pounds of pressure and one centimeter of trigger pull required to cock the hammer and fire the gun are its only margin of safety. It requires a high level of owner training and is usually not as good a choice as a simpler, double-action revolver, in Farnam's opinion.

But, the powerhouse of handguns is the single-action auto loader. Once loaded, it is carried cocked with the "manual" safety on. The safety comes off when the shooter's finger goes on the trigger during the draw sequence. It is the fastest gun to an accurate first shot, and it can be rapidly reloaded with a prefilled magazine. Yet, owners of both the Colt .45 Commander and the Heckler and Koch P7 in this category require extensive training. Few have the hours or serious desire to learn to use these guns efficiently.

"Most people cannot conceive of what these weapons can do in the hands of a professional gunman," said Farnam.

Blackburn, 31, brought a Colt .45 Commander with her when she came to ESI. Working as a security guard in California, she had learned shooting basics from her boss. But, on the range, within the first few hours of serious shooting practice, the web between her thumb and forefinger became mangled and bloody. The gun was too heavy for her small hand.

"Everytime I pull the trigger, I know it's going to be loud and it's going to recoil," she said. "It's hard to get used to."

She was further hindered by her holster.

(Continued on page 66)



Blackburn, left, and Babb clean their weapons after a day's training at ESI.

Thermoelectric:

Compact Silent Generator

A small, portable 6- to 12-volt, 6-watt power source . . .

By Jim Benson



ABOVE—The flame on this Coleman burner had to be turned low so as not to overheat the Compact Silent Generator. A surprisingly small amount of Coleman fuel was burned in operating the CSG.



The CSG with AA, C, D and 9-volt combo nicad battery recharger with adapters.

WITH only a small campstove, wood stove, Tommy Cooker or other heat source, you can have electricity to operate television sets, lights, radios, battery rechargers or other appliances. In fact you can power up to three appliances at once.

All this is possible with the Compact Silent Generator, a 5-pound, 6-watt, portable thermoelectric generator being evalu-

ated by the U.S. Army Special Forces.

The CSG is 9 by 3 1/4 inches and produces 6 to 12 volts of direct current electricity at 6 watts. Made of strong metal and solid-state components, the CSG has a low profile and stores easily until needed for running appliances, CB radios, pumps, you name it. It is available with heavy duty carry bag, battery recharger for AA, C, D and 9-volt nickel cadmium batteries, Yanes, propane stove and burner, auto battery charger cable, extra cable adapters.

To operate the CSG, just place it directly over your heat source, be it a wood stove, Sterno canned heat, etc. Within five minutes a green "RUN" light comes on letting you know the CSG is producing the necessary power for the job at hand. If the heat source is too hot, a red "HOT" light comes on telling you to remove the CSG from the heat source or lower the heat. If you still don't reduce the heat, an alarm sounds, requiring immediate removal from

the heat source before damage results. In this way you can monitor your heat source to insure you're getting just the right amount.

The ASG staff tested a CSG with a Coleman gas stove and were able to recharge three nicad D cell batteries without a hitch. Initially, the flame on the burner, turned all the way up, had to be lowered after the CSG's red light came on, but once the burner was adjusted, the CSG did its work efficiently, and silently. A surprisingly small amount of Coleman fuel was consumed in the process.

The Ovonc Thermoelectric Company, which manufactures the CSG, guarantees its performance with a 1-year warranty from date of sale.

In the staff's opinion, the CSG is an excellent source of electricity which would be very useful on a camping trip or other outing, or in an emergency situation where there is no other source of electric power.

The CSG, including heavy duty carry bag, is \$139.95 postpaid from The Dutchman, Dept. ASG, 9071 Metcalf, Suite 158, Overland Park, KS 66212; for orders call toll free (800) 821-5157. •



The thick metal plate on the bottom of the CSG is placed directly over any heat source to operate the generator.



Green "RUN" and red "HOT" lights help the user monitor operation of the CSG safely.

Disaster/Shelter Waste

(Continued from page 37)

household chemicals can kill off the bacteria necessary for efficient handling of organic waste in a cesspool or septic tank. Flushing such chemicals into a cesspool or septic tank can cause the system to fail and render a tank useless; great care must be taken in what is sent into the sewage system when it is a small, single unit. If the bacteria colony in a septic system is accidentally killed off, it is possible to purchase packages of bacteria spores of the type which "digest" wastes in septic tanks. These packages could save the day if you accidentally killed off the bacteria in a septic tank or if you were starting up a tank in a post disaster situation. These packets are available in many grocery or hardware stores.

If large numbers of survivors are in an area and it is uncontaminated by fallout or other dangerous materials, it is essential to get systems of latrines set up and make their use mandatory. Failure to do this will guarantee the deaths of many of the survivors through disease. Principle considerations in setting up latrines are to keep vermin (especially insects) out of the latrine and away from living areas and to keep the effluent coming from the latrine from seeping into the ground water or other water supplies. If at all possible, a septic tank system should be created for each latrine, though a cesspool directly under a latrine is a viable solution if speed is needed in setting up the system and all you have is hand labor and no cement. (See "Field Sanitation" in the Sept. '86 *American Survival Guide* and "Preventive Medicine" in the *U.S. Army Special Forces Medical Handbook ST 31-91B* available from Paladin Press, Dept. ASG, P.O. Box 1307, Boulder, CO 80306 for \$14.95. Both give excellent information on how to create latrines and deal with waste disposal in primitive situations).

In a major disaster, disposal of animal carcasses as well as human bodies would also be a prime consideration in order to prevent the spread of disease. In such situations, mass graves are usually best if earth-moving equipment is available. If such equipment isn't available, then bodies should be covered with dirt as close to where they are located as possible. Burning bodies is a viable alternative IF fuel and manpower are available for transferring bodies to a central location. Improvisation will probably be the name of the game in such a situation; wooden buildings might be utilized as large pyres.

Give a lot of serious thought to your waste disposal and toilet facilities; they are of prime importance not just to your mental well being but to your health and survival as well. You can greatly improve your survival chances by using good hygiene and modern methods of waste disposal. ●

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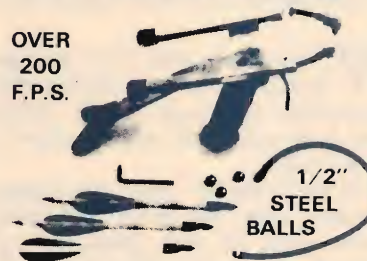
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Josef's Storhaus:

Crank Radio

It uses no batteries so it always works when you need it . . .

Staff Evaluation



ABOVE—Ranger-2 has AM, FM and WEATHERBAND tuning. Emergency Broadcast information is carried on WEATHERBAND channels during a crisis.

plastic case with sturdy plastic all-weather cover to help keep moisture and dirt out. When you don't need the protective cover, just take it off and snap it in place on the back of the Grinder until you need it again.

WHAT IF you were in an emergency situation where you needed official information and your radio's batteries went dead and there were no more batteries to use?

Try the "Grinder" radio—the Ranger-2 portable AM/FM/WEATHERBAND receiver with its own hand-crank generator. It needs no batteries. It has its own built-in special nickel-cadmium storage cell which is rapidly charged by turning the hand crank affixed to the Ranger-2. About one minute of cranking (about 200 full turns) will give you 45 minutes to an hour of listening time. If you need to keep listening, keep cranking each time the radio runs down.

Besides the radio, Ranger-2 has its own self-contained flashlight which is also run by the hand-crank generator—an additional light source for those emergencies when you may have no batteries for your regular flashlight.

The Grinder comes in a bright yellow



The sturdy plastic weather-resistant cover allows use of the Ranger-2 in foul weather while protecting against dirt and moisture. Cover comes off and can be snapped on the back of the radio when not needed.

The ASG staff tested Ranger-2. It works very well. We found that we got about 45 minutes of listening with about 200 cranks, but this will vary according to conditions where you are. We were able to receive almost all FM and AM stations on this radio that we do on other portable radios we own, as well as the weather service on the weatherband. The flashlight was not as bright as we would have liked, but it does work and would be a usable backup light for close-up work in an emergency. For best results, don't play the radio with volume turned up (battery runs down faster with high volume but you can hear the radio fine with minimum volume level), and don't run the radio and battery at the same time as this also runs out the charge on the storage cell faster.

This would be a good backup, emergency radio. Its case, cover and crank are made of fairly hard plastic and it is a rugged little machine. But it is not unbreakable. So handle it with care for longer service life.

We're informed by the retailer, Josef's Storhaus, that it's best not to turn the hand crank too hard when using this radio, and it's best to let the charge on the storage cell run out completely (so the radio is dead) before storing to prolong the life of the storage cell. This is an emergency device, best kept in storage until needed for emergency use. Repeated, regular use of the radio will wear it out sooner. If used sparingly, it will last indefinitely.

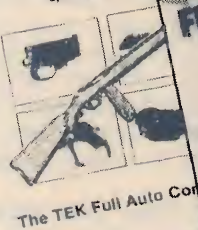
Ranger-2 is \$79.95 postpaid, or two for \$139.95 postpaid from Josef's Storhaus, Dept. ASG, 2401 S.E. 161st Court, Vancouver, WA 98684. For orders only, call toll free (800) 528-0559. Ask about the other fine survival and emergency equipment available from Josef's Storhaus. ●



Ranger-2 has its own built-in flashlight which is also operated by the hand crank.

SELECT FIRE 10/22

By Wayne Thornburgh



SELECT FIRE 10/22
A reliable select fire conversion for the Ruger 10/22 has eluded Class III weapons enthusiasts—until now. The TEK Gun Works conversion method described in this volume may well be the *optimum design* for converting the 10/22 to select fire. Additionally, it is reasonably simple when compared to other methods being touted in the market place—methods that don't work as well. Softcover, illustrated.

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Step-by-step instructions for converting this popular sporting and survival rifle to FULL-AUTO. Auto-Sears explained with reviews of several brands. PLUS full machinist's drawings for a homemade Auto-Sear. Even if you don't plan to convert your AR-15, you owe it to yourself to know how. The day may come when a well armed populace will mean the difference between freedom and tyranny. 5½x8½, softcover, 32 pages, illustrated.

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FULL AUTO KG-99 by Gary Hill

KG-99 owners, your book has arrived. It's been a long time in the waiting but like all good things it's well worth it. A totally reliable open bolt conversion for the semiauto family of KG-99's. Covered in this manual are the conversion plans for the interdynammic KG-99, KG-99 Mini, Intratec TEC-9 and TEC-9 Mini. Complete with many photographs, machinist drawings and exploded views with parts listings and a step-by-step easy to understand procedure. 5½x8½, softcover, 48 pages.

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HK 91/93 \$8.00

Full Auto



FULL AUTO, VOLUME TWO Semiauto UZI Modification Manual

This revised edition covers two methods of conversion, one for a drop-in conversion to full-auto only and one for permanent conversion to selective fire. Every step is shown in large, clear photos and concise, easy to understand text. Remember, due to federal law, Israeli-made full-auto UZI's will never be available to collectors, but the semiauto version may be converted. 5½x8½, softcover, 34 pages, profusely illustrated.

036 \$6.00

FULL AUTO, VOLUME FOUR Semiauto Thompson M27 A-1 Modification Manual

The Thompson semiauto Model 27 A-1 is extremely popular among civilians and is one of the easiest semiautos to convert to FULL-AUTO. There are no extra parts to buy and only three original parts need to be altered. Complete machinist's drawings illustrate the alterations, which can be done in a basic machine shop. Easily understood text. 5½x8½, softcover, 24 pages, illustrated, including a history of the Thompson SMG.

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Since the M2 is a direct descendant of the M1, the M1 can easily be converted to full-auto by a mere substitution of parts and some minor alterations in the stock and trigger housing. This book contains all the information needed for the conversion: basic differences between the M1 and M2, the parts needed are listed and shown, even full machinist's drawings for converting M1 parts should certain M2 parts prove difficult to find. 5½x8½, softcover, 28 pages, fully illustrated.

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FULL AUTO, VOLUME THREE Semiauto MAC 10 Modification Manual

This manual presents six different methods of converting the semiauto MAC 10 to FULL-AUTO. These methods range from very simple, full-auto only conversions to more involved, selective fire versions. All modifications are easy and require no difficult machining operations. Conversion techniques range from the mere removal of metal to the addition of simple, removable parts. 5½x8½, softcover, 52 pages, profusely illustrated.

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The Mini Thirty Rifle

(Continued from page 27)

tially, sometimes not. After seven or eight tries, the bolt wouldn't open, so we struck the bolt handle with the palm of our hand. The bolt opened, with the extractor ripping off the edge of the case head, leaving the case stuck in the chamber. We used a cleaning rod to remove the stuck case.

Another surplus load, in a reddish/brown colored case (also Berdan primed) would feed, but wouldn't fully chamber. The neck diameter was largely due to the way the bullet was crimped in place. The first time we released the bolt on this ammo, the bolt flew forward but did not cam into battery, but we weren't aware of it. When the trigger was pulled, the hammer swung through its arc, striking the rear of the bolt (missing the firing pin). At this point we couldn't retract the bolt due to the hammer being forward. A screwdriver, was used to cock the bolt manually, thereby allowing the bolt to be retracted. We must state that this ammo is also corrosive, and shouldn't be used. This is all we had at the time, but it was a waste of money. Ruger also recommends against use of such ammo.

Later we obtained some Yugoslav ammo which reportedly isn't corrosive. It functions fine in the Mini Thirty, and at 100 yards range, with the Ruger rings holding a Redfield 4x widefield scope, produced five-shot groups (in gusty winds) averaging between 3.2 and 5.8 inches. It is recommended you use good, factory loads from PMC, Norma, Lapua, Hansen Cartridge Co., or Midway Arms, if you desire consistency and smooth operation. Much of the surplus stuff in this caliber is not worth the money. It's available in both ball and soft point, but only the latter is approved for game hunting.

Due to the low velocity of this round, we feel you'd be wise to go for the lightest weight bullets available if you're going after small game to add to your table fare. In this manner you'll gain a boost in velocity, which is significant if you intend to try such a round on deer-sized game. If you attempt to take game with this load, which offers ballistics comparable to the .30-30 Winchester and .44 Magnum cartridges when fired in carbines, we feel it is best to attempt shots at ranges less than 100 yards. Otherwise you're going to end up with lost, wounded game animals.

Summarizing our opinion of this latest version of the Mini-14, suffice it to say Ruger has another winner. The integral scope mounts are welcome and the cartridge shows promise. With an overall length of only 37 3/4 inches, and a weight of 7 pounds 3 ounces, it's a dandy. Available in blue, the suggested list price of the Mini Thirty, at press time, is around \$420. Use good ammo with this piece, and it will serve you well. ●

Cancer

(Continued from page 49)

cer (IARC), an agency of the World Health Organization, has been publishing critical reviews of data on the carcinogenicity of chemicals to which humans are exposed. Where a link is found, the data is made available to the public. The list includes substances such as benzene, soots, tars, oils, cadmium and formaldehyde. See the illustration with this article.

SOLAR RADIATION: This is the chief cause of nonmelanoma skin cancer, responsible for about 90 percent of cases. It has also been linked with skin melanoma, but that relationship is more complex. Though nonmelanoma skin cancers are now considered to be 98 percent curable, they still accounted for as many deaths in the U.S. during the 1950s and 1960s as did melanomas, which are far rarer but more lethal. More than 400,000 new cases of nonmelanoma skin cancer are thought to occur in the U.S. each year, and this number is rising. Nonmelanoma skin cancer is the most common form of cancer among Caucasians. Solar radiation (sunlight) ranks high among the "lifestyle" factors associated with cancer. Most individuals have some choice in the amount of sunlight exposure they get, and too much sun is the chief cause of nonmelanoma skin cancer.

VIRUSES: Although some viruses are associated with human cancers, other factors are believed to be responsible for the development of cancer. Viruses may make cells more susceptible to the effects of radiation or chemical carcinogens, for example. Viruses may invade genetic material of a cell and affect the cell's protein production, causing changes that can lead to uncontrolled growth. Under this theory, a whole virus need not be present to cause a change. A single gene, the basic unit of hereditary codes for a protein, may be enough to disrupt the cell's normal function or make it more vulnerable to other carcinogens. Other factors acting with viruses are probably needed for cancer to develop. These may be other viruses, a hormone, an immune system deficiency, or an environmental factor. It's possible that vaccines will be developed against viruses linked to human cancers. One approach to preventing these types of cancers may be by reducing exposure to possible cofactors as they become identified.

Knowledge of risk factors and changes in lifestyle such as stopping smoking and changing your dietary habits—particularly avoiding the wrong "foods" and insuring that you and your family eat the proper foods, can make the difference between staying healthy and developing cancer. For more information, contact the National Cancer Institute, Bethesda, MD 20892, or see your local health professional. ●

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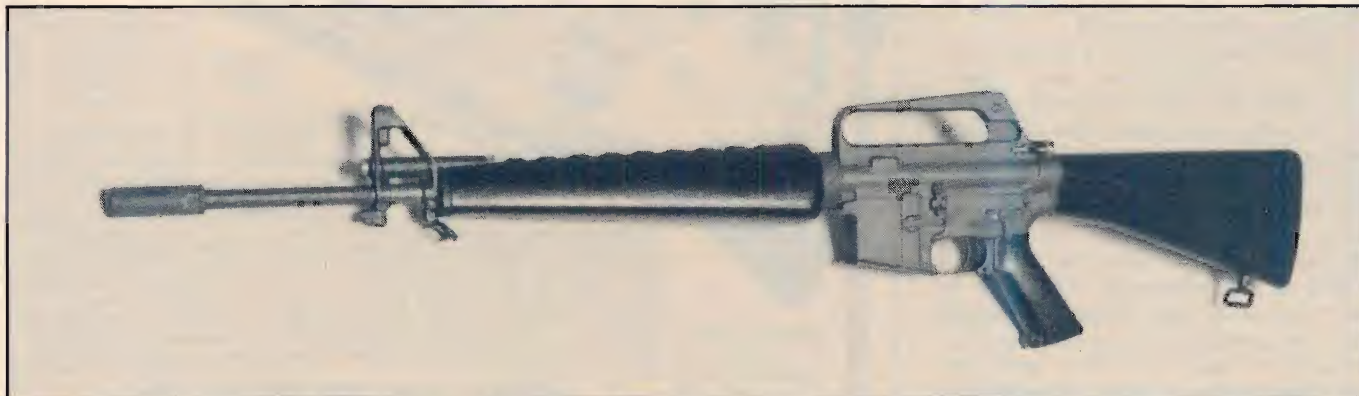
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Gas Piston, Rod:

Rhino International M16 System

The Rhino system is similar to the system employed on the AR-18 rifle . . .

By Ken Fabian



ABOVE—An M16 converted to the Rhino system.

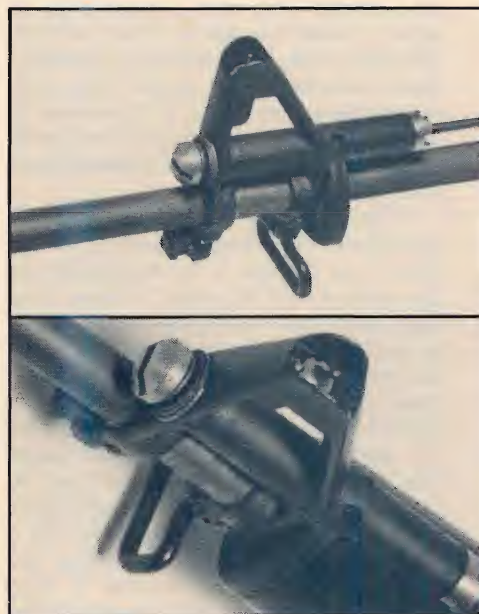
THE M16 rifle has been the subject of controversy as long as it has been in existence. Despite all the controversy it is estimated that over 10 million of them in various configurations have been produced around the world. Despite congressional hearings, military inquiries, and unfavorable comparisons to nearly every other modern military arm, the M16 is still going strong, and apparently here to stay. I had learned to live with the M16 and all its faults and dismissed any notions of improving it until Rhino International Corp., 215 Shadeland Ave., Lansdowne, PA 19050, (215) 623-3114, developed a new system for the M16 series weapons.

The M16 controversy started when the weapon was first issued in Vietnam. The early M16s proved to be notoriously unreliable. Most of the problems with the early 16s were due to the ammunition issued. The rifle, as originally designed, specified use of a gunpowder in the ammo that completely burns by the time the bullet passes the gas port. This system (which has been used on other rifles, notably the Swedish Ljungman) is not inherently bad, but it is dirty, since gas is passed directly back to the receiver. Another problem with this system is the heat. Heat from the gases transfers to the bolt and carrier effectively vaporizing any lubricant on these parts. The M16 operating system taps gas directly off the barrel and that gas is directed against the bolt carrier to operate the action. This direction of the gas is accomplished with a small gas tube mounted above the barrel. The gunpowder in the ammunition issued with the M16 was not completely burned when it passed the gas port. Not only was hot gas blown back to the receiver, but unburned and still burning powder as well. The early

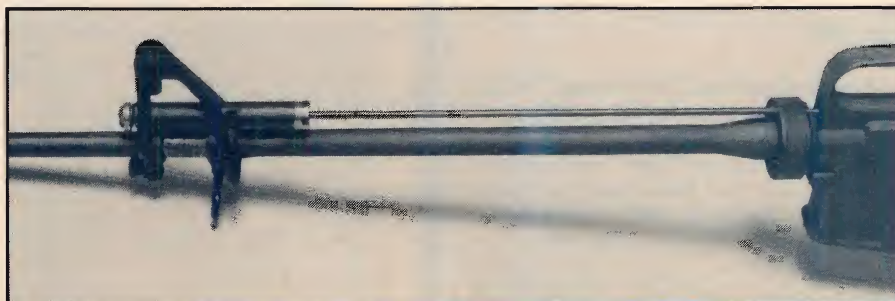
RIGHT, BELOW RIGHT—Modification of the front sight base is necessary for addition of the gas cylinder.

M16s had some other problems as well, but the ammunition seems to have been the worst. All this is old news which was hashed and rehashed in the congressional hearings. The fact remains that the M16 operating system is "dirty."

Sensitive to the defects in the direct gas system of the M16, Colt did some development work on an M16 type rifle with a closed impinging gas system. The military was apparently not interested and so the matter was dropped, at least by Colt. Another company, Rhino International Corp., has developed a new system for the M16 series weapons utilizing a gas piston and rod to operate the weapon. The Rhino system is similar to the system employed on the AR-18 rifle. The Rhino system consists of a modified front sight base, operating rod, piston assembly and a special bolt carrier key (the Rhino bolt carrier key has a built in buffer). The handguards and the front retainer cap must be modified slightly to provide room for the Rhino gas



cylinder. The Rhino system is a definite improvement over the standard M16 since it should operate cooler and cleaner and therefore more reliably, particularly in field conditions where cleaning is difficult. Since the Rhino permits some adjustment



The Rhino system is simple and does not require special operating procedures.

in the gas system; variations in ammunition could be compensated for, as well as some control of the cyclic rate in full-auto fire.

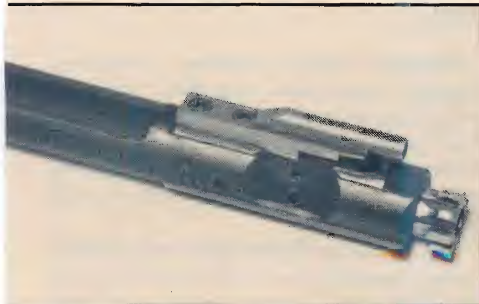
I have use of a private ranch in the desert where I usually go to shoot my machine guns. Since I was really interested to see the Rhino conversion work, I organized a controlled testing at the range. First I tried the unit with the adjustment screw all the way in, it functioned perfectly, the cyclic rate in full auto seemed about the same as a standard M16. Then, with the adjustment screw as far out as possible without the screw coming out of the gas block, the gun fired but failed to cycle. The bolt had to be operated manually. I then adjusted the screw in a little further and the weapon again functioned. In full auto the rate of fire was much slower.

After testing various settings, the Rhino functioned flawlessly. I noted that the handguards started to warm up, but the receiver and the bolt were only slightly warm to the touch. I fired about 200 rounds full auto, and found the handguards and the barrel hot, while the receiver and bolt carrier were only warm. Noticeably absent was the "ammonia" smell which is usual when firing the M16.

After my test session I removed the bolt and carrier from the rifle and found it to be quite clean. Two weeks later I took the Rhino out to the desert and gave it another run. I had not cleaned it since my first test. I fired the rifle in the same manner and obtained the same satisfactory results. Then I fired six, 30-round magazines through it (full auto) one after another. The handguards near the front sight got very hot but the handguards near the receiver were cool and bolt carrier was only warm to the touch.

The Rhino system is a viable answer to making the M16/AR-15 family of assault rifles reliable with minimal or infrequent maintenance. Under truly adverse conditions it could be worth its weight in gold.

Rhino International sells its conversion system in kit form with instructions, starting at \$180 for a standard M16 with 20-inch barrel. The firm will also do the conversion for you if you send them your rifle. Contact Rhino International at the above address and telephone number for more information. ●



The standard bolt needs the addition of the carrier key with buffer system.

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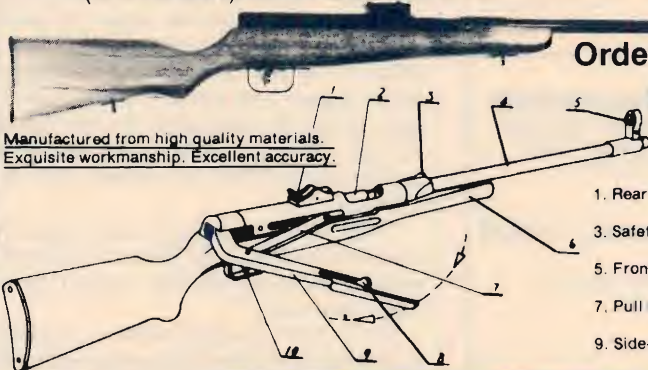
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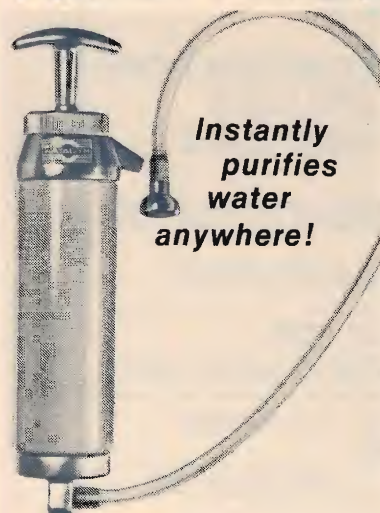
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Women Bodyguards *(Continued from page 57)*

Belted at the waist of her designer jeans, the Bianchi holster placed the butt of her gun so high under her arm that she couldn't draw quickly. When she practiced for a critical timed exercise, she finished at 27 seconds, far over the 15.5 limit. Farnam allows students only two chances to pass the test, and Blackburn feared she'd be disqualified from tactical training. But when Farnam handed her a smaller H&K P7, she scored 18 seconds on her first try, and 15.3 on the second.

Babb, 21, had never fired a handgun before ESI training. Working as a small town police dispatcher for half a year, she had cured herself of any desire to work in law enforcement. "Police have to put up with too much hassle to do their jobs," she said, "I want thanks, not criticism."

Babb's unisex, shrink-to-fit Levi 501s slung low on her hips gave no resistance to her speed. Her S&W .357 revolver, stashed into an Alessi holster on her low belt line, was easy to draw. She passed with a score of 13.8 seconds on her first test.

Although TV portrays women slipping a secret gun from a purse holster and nailing the bad guy, Farnam believes that a gun in a handbag is awkward to reach and often too slow to be practical, although specially designed purses may be suitable in some circumstances. And, most practical guns are too heavy to be inconspicuously carried in jacket pockets.

Smooth, Slick, Small—"A concealed weapon should be smooth, slick and small, with a short barrel," he advised.

But, for most purposes, a gun is a gun is a gun; it's the shooter that makes the difference. And, good shooters first learn the rules of safety. Farnam's range rules for safe gun handling are: 1) no unloaded guns are allowed on the range; 2) don't point the gun at something you can't afford to replace; 3) don't put your finger on the trigger until you are ready to shoot; and, 4) you are responsible for the bullets you fire. With this philosophy, each ESI student expends 500 live rounds, with no mishaps.

"First, if you're going to carry a gun, it should be loaded," said Farnam. "Second, avoid fights when possible, and win them when they aren't."

In the first shooting exercise, students knock disks 10 inches in diameter off their stands. Because students may be confronted by multiple adversaries at varying distances, the disks are placed two to eight meters from the firing line. Farnam refuses to let students advance to tactical training if they cannot pass the timed exercise. The point, he says, is to introduce stress into accurate shooting.

"Farnam expects you to shoot fast and to shoot with precision," said Babb. "You sweat, your heart beats hard, you can feel the adrenalin in your stomach. Yet, I think

women handle pressure better than men do. We aren't as concerned about image."

To improve their chances for accurate shooting, students learn to use either of two modern shooting positions. Before handgun techniques developed in the 1930s significantly evolved about 10 years ago, shooting stances were awkward. Historically a federal agent executed an acrobatic routine that called for him to draw his gun from the holster, place his free hand over his heart, step sideways, squat down and shoot. Problems ranged from the embarrassing—as the agent lost his balance—to the deadly—one-handed shooting produced more misses than hits.

Now, the Weaver and isosceles stances are considered standard. In the Weaver form, one foot is placed in front of the other to increase stability, as if the shooter were taking a normal step. With the body turned slightly to the side, the shooter draws the gun, pushes the strong arm forward and raises the gun to eye level with both hands.

Although the Weaver stance can be used with both auto-loaders and revolvers, some shooters who use revolvers prefer the isosceles stance. Standing with feet apart at about the width of the shoulders, the shooter raises the gun to eye level, keeping the shoulders squared to the target and the elbows locked.

"The Weaver stance gives more options of movement and seems more natural. Balance is better. However, the isosceles works as well for many shooters," said Lance Weber, assistant firearms instructor at ESI.

As in other disciplines, form is important: the essential element in accurate shooting is forming a steady base from which the gun can fire. The shooter's role is akin to that of a missile silo—it is a platform from which the projectile can be launched. Poor shooters are those who mentally anticipate the shot, causing the muzzle to move as the round is being fired.

"You don't have to muscle the bullets out of the gun. Once your sites are on the target, you put gradually increasing pressure on the trigger," Farnam advised. "Don't rush. When the hammer falls, wait three seconds, then bring the muzzle down."

Practice—Good shooting, however, requires continuous practice. Once a woman learns to shoot, she should practice four or six times a year in order to keep current. She should also learn to clean and load her gun herself to ensure self sufficiency.

Blackburn and Babb spent an hour each evening brushing and polishing the mechanisms of their weapons. Because of their care, their guns never malfunctioned on the range.

But one problem of some women

shooters is their belief that knowing how to shoot and clean a gun threatens the macho of their husbands or men friends. Being competent may alter their own image of their femininity.

"Many times, women in my classes are darn good shooters. But when their husband or boyfriend comes on the range, they suddenly can't hit a thing," said Farnam. "When he leaves, they recover."

In ESI's "OK Corral," however, Blackburn and Babb must pull their weight as members of an executive protection team. According to the scenario, six assassins attack the protectee from the left side and rear of a restaurant. While the close proximity bodyguard covers the client and makes for the exit, the others return fire, shooting at their adversaries through windows and around innocents. They exercise discrimination and also coordinate with team members as they reload and exit.

"In gun tactics, we're far more evenly matched with the men than in hand-to-hand combat," said Blackburn. "The main difference is in physically maneuvering the client out of the danger zone. Men are more mobile, more willing to crash and burn."

Are men also more likely to shoot to kill in defense of their client? Although ESI's four-day shooting course stresses avoiding trouble through advance planning, the fact remains that if women are ever to defend with a firearm, they may necessarily injure or kill. Can they do it?

"Psychological studies show that the techniques you've learned to do in theory and then practiced in drills, is what you will do when the going gets tough," answered Farnam. "Yes, women can—and do—shoot their assailants."

"Would I shoot someone? Yes, if I needed to," said Babb. "If you're not going to be able to shoot, you shouldn't be in this business. You're cheating yourself and the people who depend on you."

"I'd never want to kill anyone," reflected Blackburn. "But if it were a choice between them or me and my client, then I'd do it."

While the decision, made in advance, to shoot if necessary is essential in self-protection, a woman's primary defense is her ability to think. With planning and experience, she may be able to steer clear of trouble. If she can't diligent practice with her handgun will bring results.

"A gun is just a passive defense tool—a piece of equipment that requires a high degree of proficiency and practice on a regular basis," reminded Weber. "Without this commitment, a woman is better off with a can of mace."

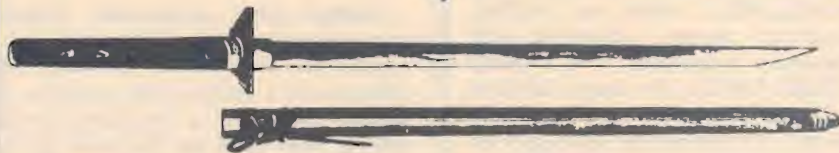
In other words, while diamonds may be forever, a woman's handgun—and her skill in using it—can be worth a million. ●



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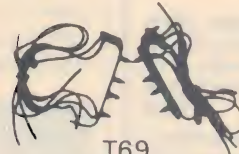
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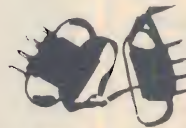
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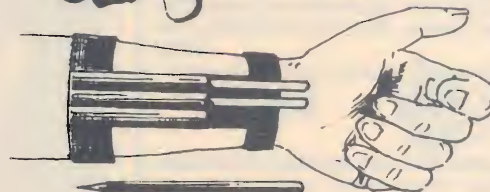
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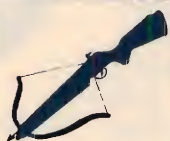
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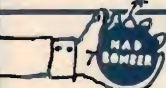


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Lean Machine VS. Mean Machine

(Continued from page 28)

agreed with him due to the payload and comfort capabilities. Also, most liked the automatic four-wheel drive. The owner liked the same things, however he added, "I prefer not to get too far from a repair shop or spare parts. I doubt that either would be available during a severe crisis." I am glad he said that instead of me.

Choices—After considerable deliberation, the group decided that a mid-size or regular-size six-cylinder, two-wheel-drive pickup with a camper shell would be the second choice for a long-term survival vehicle. Next came the 4x4 small pickup, provided a small economy engine was available, in a sparsely equipped model.

There was concern over the ability of the small four-cylinder engine to perform over rugged terrain conditions. Most of the fears were abated when the two Toyotas on the trip climbed the rutted gravel roads into the northern part of the Ozark National Scenic Riverways.

Any remaining fears were erased at a later date, when my small Toyota went into the famous Georgia Chattahoochee National Forest area and on roads usually reserved for the 4x4 vehicles or back-packers. The gas mileage was considerably reduced, and the point-of-no-return had to be revised, but the rugged little truck made the trip without a hitch. Where I camped the first two days, the Toyota was the only two-wheel drive present.

A major point in favor of the small 2x4 pickups is the fact that a lot of spare parts are available in chain stores, discount houses and even some so-called drug stores. There was a time in history when parts for foreign vehicles were hard to find and expensive. Today's world of imports has brought forth more than enough spare

parts and at lower cost.

The small pickups do not have the load capacity or available bed area of the larger pickups, but there is ample square footage for those that will take time to pack them properly. The Toyota short-bed model has a 72- by 54½-inch bed. Not a lot, but enough for your gear and a place to sleep if needed. Also, the small beds can be fitted with the military pup-tent and used as sleeping quarters for one, or a possible field command post.

Prior to the purchase of my Leer camper shell, I used the pup-tent affair as my sleeping quarters. A severe storm blew in, soaking all those sleeping on the ground, in or out of tents. Sleeping high and dry during a rain storm is a good feeling. I probably could have rented the truck, tent and all for a good profit that night. The following morning during the drizzle stage of the storm, I cooked my breakfast on the tailgate, as the flaps of the pup-tent provided protection. Now the camper shell provides the sleeping quarters and a tarp secured to the tailgate window provides the kitchen when it is needed.

Certainly, there are good points and bad points about any type of survival vehicle. The final decision has to be yours. I prefer the inexpensive, four-cylinder easy-to-work-on type of vehicle. If by chance I had to abandon it for one reason for another, my loss would not be as great as some. Secondly, being inexpensive, I may have extra money available to buy my way out of a bad situation. Having all funds tied up in a machine, may not be the best idea.

MEAN or LEAN . . . that's up to you. However, should I pass you on the road during a severe emergency and you need the gas that I have remaining, you'll have to have a MEAN weapon to get it. ●



A surplus military pup-tent and homemade 2 X 4 pole bases can turn a small pickup into a dry sleeper or field command post.

(Continued from page 25)



The puffball mushroom.

Wild mushrooms occur in every part of the United States. The trick is in the finding. But they are worth the hours spent, and too, there is the added bonus of an excuse to get out into the wilds and allow the soothing, silent beauty of nature to wash away the cobwebs accumulated in the senses during the inactivity of the winter months.

Also, all of the above wild mushrooms can be used in exactly the same ways as the commercially raised button mushrooms—sautéed, in sauces, in soups, etc. ●

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(Continued from page 72)

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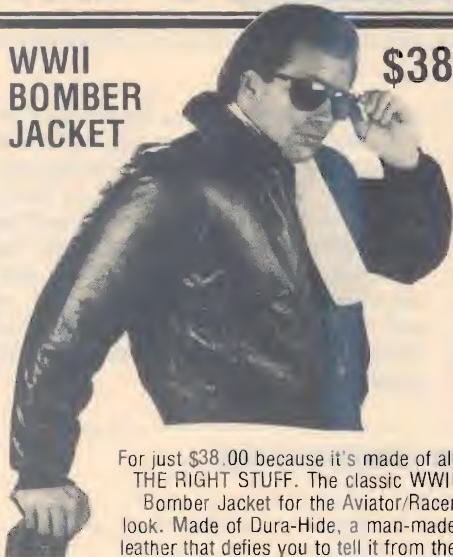
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(Continued on page 70)

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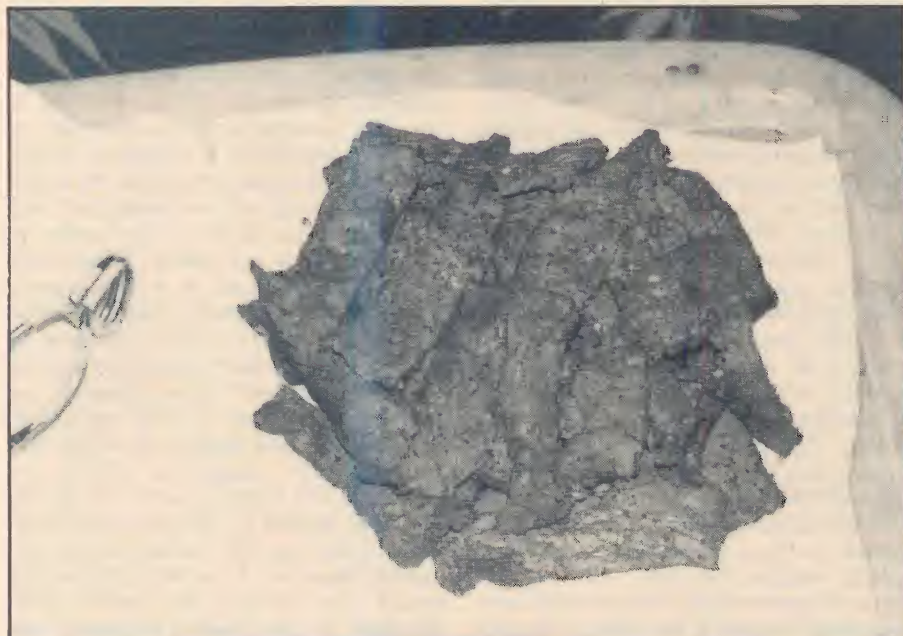
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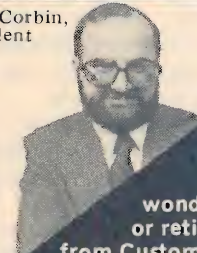
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By Robert B. Northway, D.V.M.

MEAT HYGIENE, is not a mere luxury which might be handled lightly, or worse, entirely overlooked. Butchering meat should be given the same thought and preparation as any other important life sustaining work.

Beginning with the live animal, to the warm carcass, and on till the product is to be cooked, this is a valuable perishable food product. There are many health hazards one can eliminate from the diet if one knows what to look for when butchering domestic animals or game. Many diseases can be transmitted from animals to man at the time of butchering or consuming the animal product that has not been properly inspected. Proper sanitation is of utmost importance when slaughtering to prevent contamination of the edible product. A clean dust free area with pure water available should be used for butchering.

The first step is to observe the animal before killing it to be sure it is perfectly healthy. It should be observed at rest and in motion. At rest it should be breathing easily, have no unusual swellings or discharges from any orifice, have clear eyes, and supple skin with a good shiny coat. When moving, it should move freely without stiffness or limp in a normal coordinated manner. If a domestic animal, it can be restrained and its temperature taken with a rectal thermometer. A morning temperature is more accurate and thus has more meaning. No animal with a fever (elevated body temperature) should be butchered. Excitement can raise the body temperature by one degree Fahrenheit and still be acceptable. Any animal appearing ill or abnormal in any way should not be butchered. Slaughter and eat only healthy normal animals.

Two diseases are particularly dangerous and should be watched for in this ante-mortem (before death) inspection; they are anthrax and rabies. These diseases are especially contagious and frequently fatal to those handling the animal, its products, secretions or excretions.

The symptoms to watch for with anthrax in ruminants (cattle, sheep, deer, etc.) are trembling, staggering, difficult breathing, and bloody feces, urine, or saliva. This disease can be contracted by just handling the animal, its parts, secretions, or excre-

tions. If anthrax is suspected, the carcass should be buried deep with hot commercial lye, the litter and wastes burned, and the area soaked in a five-percent solution of lye (2.5 lbs. lye in 5.5 gal. hot water). Protect the person applying it with rubber gloves, boots, heavy clothing, and goggles. Keep vinegar (a weak acid) at hand in case the person applying it comes in direct contact with the lye.

Animals with rabies may show nervousness, irritability, aggressive behavior, spasms, convulsions or a characteristic mincing gate. In the early stages they may be more friendly and affectionate than normal. Be very wary of the friendly wild animal. In later stages there will be profuse slobbering as they can't swallow their saliva. They will rapidly become dehydrated and show a fear of water (hydrophobia) because they can't swallow it. This disease can be spread to the handler of the animal or its surroundings via its saliva, which contains the virus. The virus can enter the person's body through small, even unnoticed breaks in the skin or possibly through the mucous membranes of the eyes, nose, mouth, etc. Any animal suspected of having rabies under survival conditions should be killed and avoided by all; do not touch it or its surroundings.

If the animal is ill in any other way it should be isolated and treated till it recovers. It must be completely normal for at least two weeks, with a longer time better, before slaughtering.

When you have your healthy normal animal, it should be killed in a quick humane manner to avoid excitement and the buildup of toxins in the meat.

As the animal is butchered the post-mortem inspection should be conducted. Most of the healthy animals you butcher will be completely normal. You should pay close attention to what these normal tissues and organs look and feel like so you will recognize an abnormality when you see or feel it. The slaughtering area and equipment must be kept clean to avoid any contamination of the edible parts. Good lighting is important to maintain cleanliness. The gastrointestinal tract (guts) must be removed from the carcass without any of its contents coming in contact with the carcass meat. This is also true with respect to the edible parts of the gastrointestinal

tract. Consequently, great care must be taken when removing the liver, pancreas, tripe, intestines for casings, etc., to avoid contamination. They must be cleaned **thoroughly until the rinse water is clear.** Have clean containers for the edible parts. Many small containers are better than a few large ones as there is less chance of cross contamination. Polyethylene bags are good for this temporary storage. Polyethylene sheets are excellent to help keep the surrounding area hygienic.

Butchering—While butchering an animal all parts should be examined for any abnormality. Pay particular attention to lymph nodes and glandular tissues as they help you decide whether the whole carcass or just the affected parts must be condemned and disposed of to prevent contamination of the edible parts. Look for abscesses (pus pockets) which may vary in size from too small to see to very large, as large as a basketball. If a single or couple of isolated abscesses are found, the organ or area involved can be condemned and destroyed. Then the rest of the carcass is edible as long as it is normal. When there are multiple abscesses in various organs, the whole carcass should be destroyed. For instance if you find a couple of abscesses in the head or liver, destroy the entire head or liver and use the rest of the carcass. If you find abscesses in say the liver and lymph nodes of the head destroy the whole carcass. Another example is finding an abscess in the auxiliary (arm pit) lymph node and finding an infection somewhere in that limb then only that leg must be discarded. However, if several lymph nodes spread over the body are involved with abscesses or are swollen (enlarged) the whole carcass must be destroyed.

Another thing to watch for is fluid filled cysts (cysticerci) varying in size from a few millimeters to several inches in diameter. These are the infective form of various tapeworms and are generally found in the muscles of the body. Look closely at the most active muscles of the body. These are the diaphragm (muscle separating the thorax [chest] and abdomen [stomach]), heart, and tongue where these parasites are frequently found. When cysts are present in the muscles, the whole carcass is unfit for food. If they are found only in the abdominal viscera (guts) then these can easily be removed from the carcass and the viscera destroyed, while the rest of the carcass can be used for food. Do not allow scavengers like dogs or other carnivores to eat this diseased material as they can spread some of these parasites to man through their fecal contamination.

If many lymph nodes are enlarged the animal may have lymphosarcoma (a cancer), tularemia (a bacterial infection), or some other lymph node involvement. The whole carcass should be destroyed. It is unfit for food or feed (animal food). As you examine these tissues and organs they should be cut several times and the cut



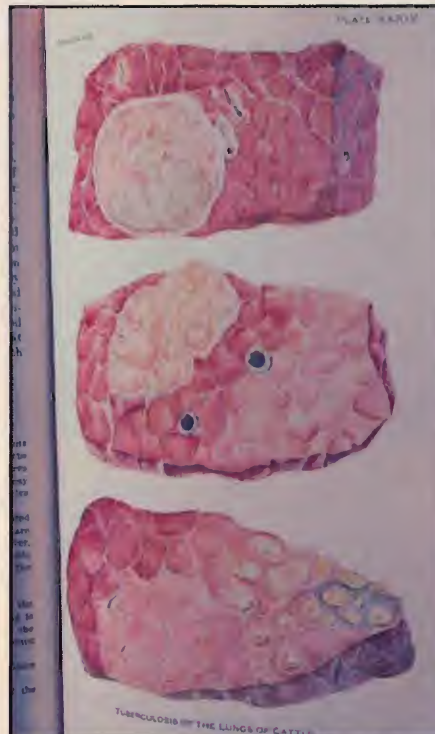
LEFT—Equipment for butchering from top clockwise: hoist, water container, plastic bag for meat, sharpening stone, boning knife, skinning knife, large butcher knife and meat cleaver.

interior surfaces examined as well, since the abnormality may be totally internal and not seen from the outer surface.

When examining the liver, the hard fibrous ducts should be cut to see if there are any parasites (liver flukes) in them. If there are the whole liver should be destroyed. When the whole carcass has a yellowish color (icteric), especially the white tissues, the whole carcass should be condemned.

Cut into the lung tissue to see if there is any pus in the bronchi or bronchioles (air tubes) within the lung. If there is the lungs are not fit for food and if there are signs of systemic infection the whole carcass should be destroyed. Signs of systemic infection to look for are changes in the appearance of several tissues or organs. These can be multiple swollen lymph nodes, tissues redder in color than they should be, small abscesses in various tissues or organs, some tissues may be congested with blood appearing almost purple or any other multiple abnormalities. Under these conditions the whole carcass should be condemned.

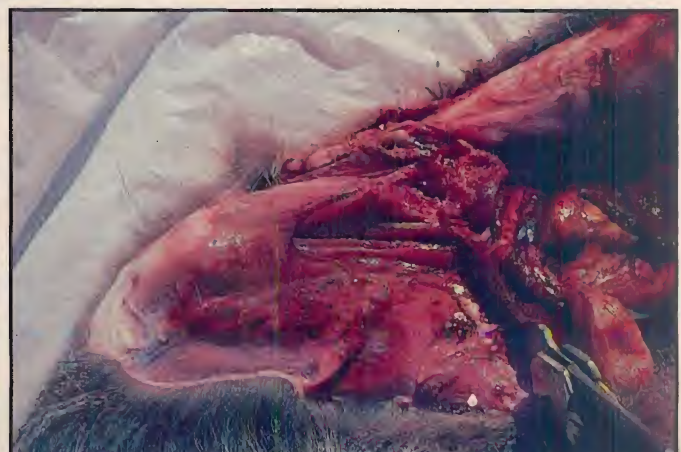
When you find worms in any tissue or organ that organ is unfit for food. If the muscles look like they have measles, many red spots through the muscle, then this animal may have trichinosis. The most active muscles are most frequently



ABOVE—Lungs of cattle with tuberculosis.

BELOW LEFT—Postmortem inspection of thoracic and abdominal contents including lymph nodes.

BELOW RIGHT—Knife slicing muscle in sections to inspect for parasites.



involved. The whole carcass should be destroyed. All pork, bear, or any carnivore meat should be considered to have some of these parasites even when they look normal. Consequently, cook them all thoroughly (well done). The meat should be cooked till the internal temperature is 185 degrees F. for at least 15 minutes.

The kidneys are good indicator organs. Indicator organs are those that show what may be going on throughout the body. If they are covered with abnormal spots of any size or have pus in them the whole carcass should be destroyed.

Any animal that is in an emaciated condition or whose tissues are icteric should be condemned. The old rule of thumb is when in doubt throw it out.

Most of the animals you butcher will be normal, but always be observant for the abnormal as a mistake could be fatal. Cleanliness is of the utmost importance when butchering both to protect the edible parts and yourself from contamination. A good book for your survival library is *Meat Hygiene*, by A.R. Miller, D.V.M. A course in anatomy, which can be taken at any junior college would be helpful in this area and in understanding health problems in general. Another course, physiology would not only be interesting, but it has broad applications to understanding how the animal and human bodies work. Happy eating! ●

Normal Body Temperatures Of Selected Animals

Species	Rectal Temperature in degrees Fahrenheit
Cattle	101.5
Sheep	103
Goats	104
Horses	100.5
Pigs	102
Rabbits	102.5
Dogs	101.5
Cats	101.5
Turkeys	106
Chickens	107.5
Pigeons	109

Remington Arms:

Model 870 SP Magnum Shotgun

It 'reaches out and touches' . . .

By Richard Colagiovanni



THE SUNLIGHT reflecting off Dave's conventionally finished shotgun barrel (blue) announced our presence—the ducks flared at a fair distance. While the ducks clarmored for altitude, Dave's gun barked once.

His shot clipped one at 40 yards. Dave exclaimed, "take 'em with that special purpose 12 gauge!" I did just that! At a good 50 to 55 yards, a 1 5/8-ounce load of copper plated #4s did what the manufacturer intended it to do. Kill game. The large diver duck, a merganser, absorbed a fair portion of the tight full-choke pattern. Then, the duck cartwheeled, quite dead, into the river. Ingredients were obtained for a "coot stew"—a favored dish of northern New Englanders.

For the rest of that eventful day, it became standard policy to back Dave up on flaring birds. Mallards, blacks, and mergansers came to bag. Don't get me wrong, I plucked several high flyers, cleanly, as they passed well out of range of Dave's modified choked gun. Of course, modified choked tubes provide for a wider pattern, an edge on mid-range birds over decoys and otherwise. However, the true advantage of a tightly choked gun, utilizing relatively heavy loads, came to be quite evident. Long-range firepower was the call of the day, as hard pressed birds tended to be a tad wary, and many flew higher.

With four million production units history, the Remington Model 870 is by no means a new kid on the block. The majority of these shotguns were produced in 12 gauge. For more than three decades, sportsmen, food foragers, and military/enforcement personnel have relied on this repeating arm. The bulk of the 12 gauge models will accept both 2 3/4- and 3-inch shells. Check the receiver. It will be so inscribed. The 870 is available in a variety of styles, including: Field Grade Plain Barrel, Field Grade Vent Rib, Field High Grade, Trap, Deer Barrel, Special Field, etc. A variety of gauges are offered, but 12 is the choice of the majority. Most models possess lustrous finished metal and woods—certainly a plus for eye appeal but on the negative side for hunting wary waterfowl, turkey, deer, and for self defense/survivalist purposes.

Introduced within the last year, a model 870 "Special Purpose Magnum" featured in 3-inch 12 gauge (to utilize the power & versatility of loadings for 3-inch chambers) has been well received by these special need firearm practitioners. It has answered their requests for a functional, serviceable, non-reflecting, corrosion-resisting, long-range shotgun.

Offed in the pump-action mode, reliability is achieved in conjunction with the availability of fast follow up shots often

needed on waterfowl, turkey, and bounding whitetail deer. Furthermore, the slide or pump-action has less moving parts (less, complicated mechanism than autos) that defies adverse environmental/weather conditions. Also, pump-actions are almost a necessity when using reloaded shot shell hulls. Double and single barrel break-actions adapt to reloaded shells, autos tend to jam, unless shell hulls are near original manufacturer specs. The repeating action of the pump supersedes the break-actions in available firepower while retaining the advantage of being capable of using reloads. All this adds up to a plus for pump shotguns. A true advantage for survivalist foragers that "roll their own" loads.

Waterfowl (and other game, including two-legged ones) tend to flare from reflective metallic surfaces. Dave's pump gun (older Rem. Mod. 870), on that eventful day proved this point. Even though Dave was decked out in full camo with face paint and low-lying blind, the gun's reflective barrel gave our position away. This very situation spurred the Remington firearm designers to create the "Special Purpose" series of shotgun in both auto (mod. 1100) and pump (mod. 870) format. In order to keep reflection to an absolute minimum, the "Special Purpose Magnums" incorporate a low luster finish on the hardwood stock and fore-end. This is achieved by a sub-



The Remington Model 870 SP Magnum fills the need for a functional, no-glare, no-nonsense shotgun.

dued oil finish. The oil penetrates the wood, keeping it from swelling even in the most extreme dampness. The metal components are also well addressed on reflection possibilities. The receiver, barrel, even the bolt, go through a sand-blasting process that dulls the metal finish to a smooth, no-sheen satin texture, the same that's been used for many years on military and police products. For complete corrosion protection, the bore is plated with chrome to ensure a long life for the 870 under even the worst of field conditions. Attached via swivels, is a camo-pattern sling, offering added cover and convenience in carrying. Thus, the finished product is a 12 gauge upland/waterfowl/deer pump-action shotgun, that offers low visibility and high levels of corrosion resistance.

First offerings for barrel choices were limited to 26- and 30-inch tubes, both in full choke. There's a 30-inch full choke for pass shooting traditionalists. I opted for a 26 inch in full choke for fast handling in the blind and in heavy cover. Also, the 26-inch is a bit lighter, adapting to defense deployment situations. Full choke, by definition, is 70 percent of shots (pellets) striking within a 30-inch circle, at 40 yards. My basic tests, concluded by test firing at 40 yards, showed pellet count varying from 72 to 83 percent. Now that's tight! Might even be classified as extra full in the choke department.

Shooting at game with a variety of 2 3/4- and 3-inch loads, in both lead and steel shot, disclosed the range potential of this shotgun. A variety of small game and varmints fell to the roar of the SP. Grey squirrels were plucked from tree limbs as they scurried at 40 to 50 yards. Ringneck pheasants and cottontail rabbits were equally dispatched. Just let them get away from the muzzle, at least 35 yards, where the shot pattern disperses sufficiently. Crows, who through their wariness, always **flirted at 55 to 60 yards, knew the range** of a modified choke shotgun. Some field conditions, when hunting for other species, allows for pass shots at crows but not from blinds. The 870 "Special Purpose" har-



ABOVE & LEFT—The Model 870 SP is terrific for waterfowl hunting.

nessing 3-inch loads fooled 'em. These black devils fell from the skies dead.

Woodlands, Marshes—To further evaluate the non-spooking (game) metal and wood finish on the model 870 SP, I spent several days afield in full camouflage. Stationed in both woodland and marsh/river situations, I **blended just about perfectly** with nature. Ducks, geese, and extremely wary wading birds—the ones that tip off game if spooked, i.e., great blue herons—became my confidence

decoys at a mere handful of yards. Their physical presence offering an air of confidence that encourages normal feeding patterns of adjacent game and birds. Motionless in woodland habitat, my complete camo, down to the dull, unobtrusive, Special Purpose, aided in the sightings of a variety of game. Taking into account the hunter's lore of silence, lack of movement, and scent, deer, grouse, and squirrels were viewed in abundance. My total blending with the environment was so well achieved, that a grey squirrel literally tried to walk (climb) up my leg. It tried several times even after I kicked it away. Remember, this critter was wild, not the tame ones of parks and peanut fame. The bottom line: the gun fully exposed, is not a game deterrent.

Since the 870 SP Magnum is chambered for 3-inch loads, dozens of loading possibilities are made available. The full spectrum varies from light trap and field loads spit'n out #9 pellets, upwards to 3-inch monsters, packed with a dozen 00 buckshot. Small shot such as #7½, 6, and 4 for birds, rabbits, etc., #2, 4, BB for **large birds** (i.e., turkeys), **varmints**, and buckshot/slug loadings for deer, boar, and bear. Rifled slugs are very effective on big game at close range. Groups achieved by the 870 SP at 50 yards, averaged five

Model 870 SP Magnum Shotgun

inches. Tight enough to put the light out. From a self-defense viewpoint, a variety of awesome shell loadings can be deployed; in five fast shots, all under 10 seconds. For restricted waterfowl management areas (no lead shot), several steel shot loads are available.

Four representative shot shell loadings, all of Remington manufacture, provided excellent results on small game, waterfowl, and varmints. Produced in standard 2 3/4-inch, Premier Extra Long Range shotshells, possessing 3 3/4-dram equivalent loading, 1 1/4 ounces of #6 shot. With only moderate recoil, such loadings perform well on ducks, squirrels and such at moderate ranges—30 to 45 yards. Next up, are 2 3/4-inch magnums—Nitro Magnums with Buffered Shot. A maximum powder load with 1 1/2 ounces of #5 shot. This

loading, a compromise of pellet size and pattern density, harvested many crows and ducks at 35 to 50 yards. A 3-inch loading, Premier Magnum, with 4-dram powder equivalent, in 1 5/8-ounce copper plated #4s, punched out to the 55 to 60 yard line. Equally devastating on Canada geese, was the 1 7/8-ounce 3-inch Premier Magnum in #2 shot size. Since many "peacetime" waterfowling scenarios dictate the use of steel shot (to reduce bird deaths attributed to lead shot poisoning), I burned up several boxes of 3-inch steels in #1 pellet size. Hunting shots at 30 to 45 yards proved quite effective.

The 870 SP exhibited a shell capacity of 4 in the tubular magazine, and 1 in the chamber. This 5-shot capacity can be reduced to 3 for federal waterfowling regs.

From a firearm handling viewpoint, the

26-inch barrel SP proved to be quite nimble. Quick, smooth, controlled swings, on target, were afforded. The stock dimensions of 14-inch-long (including heavy duty recoil pad—black), 2 1/2-inch drop at heel, combined with 1-inch drop at comb produced a good fit. Not bad from just off the rack.

From a convenience viewpoint, the swivel-mounted camo-pattern padded sling offers two free hands to negotiate the marsh, move over rough terrain, climb trees, etc.

Ease of operation, functionability, and serviceability are important points of the 870 SP. First off, the tried and true double bar pump or slide action has been with us for almost a century. Some gun manufacturers skimp and offer only one slide bar to work the action. This often results in binding and twisting, slowing down the availability of the second shot. Remington goes the distance by retaining the twin bars. A firm, crisp pull-push of the forend ejects and loads shells. Located on the side of the receiver is the shell ejection port. Positive extraction and tossing of spent shells is afforded. Unloading of "live" shells is accomplished by depressing the action bar lock, located near the trigger guard. Simply pump the action until the gun is unloaded. Trigger pull is good for a shotgun. Unlike the squeeze of the rifle trigger, a shotgun needs a moderate, crisp pull. The 870 SP meets this requirement.

The 870 SP shines in field servicing. Basic breakdown involves sliding the action halfway, after depressing action bar lock (if cocked). Then, unscrew the knurled cap located on the end of the shell magazine tube. Twist the barrel counter-clockwise about 90 degrees. The barrel should disengage from the receiver. Reverse this procedure to reinstall barrel.

For servicing trigger assembly, tap out a set of locking pins located on the receiver. Service the assembly, reset it into the receiver, replace locking pins. The fore-end assembly is accessible by closing the action, then removing magazine cap and barrel. Reach into the bottom of the receiver and press left shell latch inward. Slide fore-end off magazine tube. Once accomplished, breech bolt parts and slide may be lifted from ends of action bars. Clean with solvent. No further disassembly is needed under normal conditions.

The Remington Model 870 SP "Special Purpose Magnum," in 12 gauge 3-inch, a tried and true pump action shotgun, whose predecessors number four million strong, is being well received. Add a few subtle features that conceal this proven action (parkerizing/oiled wood) and we have a shotgun of foraging/survivalist excellence. Similar to an ATT commercial, the 870 SP, in full choke configuration, "Reaches out and touches." ●



Remington makes a variety of shot shell loadings offering versatility with the Model 870 SP Magnum.

Remington Model 870 SP "Special Purpose" Magnum Shotgun 12 gauge with 26-inch vent rib barrel/full choke: Tech Specs

Overall length	46 1/2 inches
Average weight	7 pounds
Shell capacity	4 in magazine, 1 in chamber; Can be plugged for 2 in magazine, 1 in chamber
Nominal stock dimensions	14 inches long (including recoil pad); 2 1/2-inch drop at heel; 1-inch drop at comb
Action	pump, with twin bars
Safety	push type on trigger housing
Parkerized special purpose barrels for slug shooting (deer), with open sights, available	
Investor choke tubes, in SP Parkerize (imp. cyl., mod., & full choke), available	
Manufacturer	Remington Arms Company, Inc., Dept. ASG, Bridgeport, CT 06601
Price, suggested retail	\$400

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#1002—The Mariner, 3 1/2"	\$ 55.00	\$ 44.00
#1004—The Executive, 2 1/8"	\$ 41.00	\$ 32.50
#1005—The Standard, 2 3/8"	\$ 30.00	\$ 24.00
#1007—The Police Model, 3 7/8"	\$ 66.00	\$ 52.50
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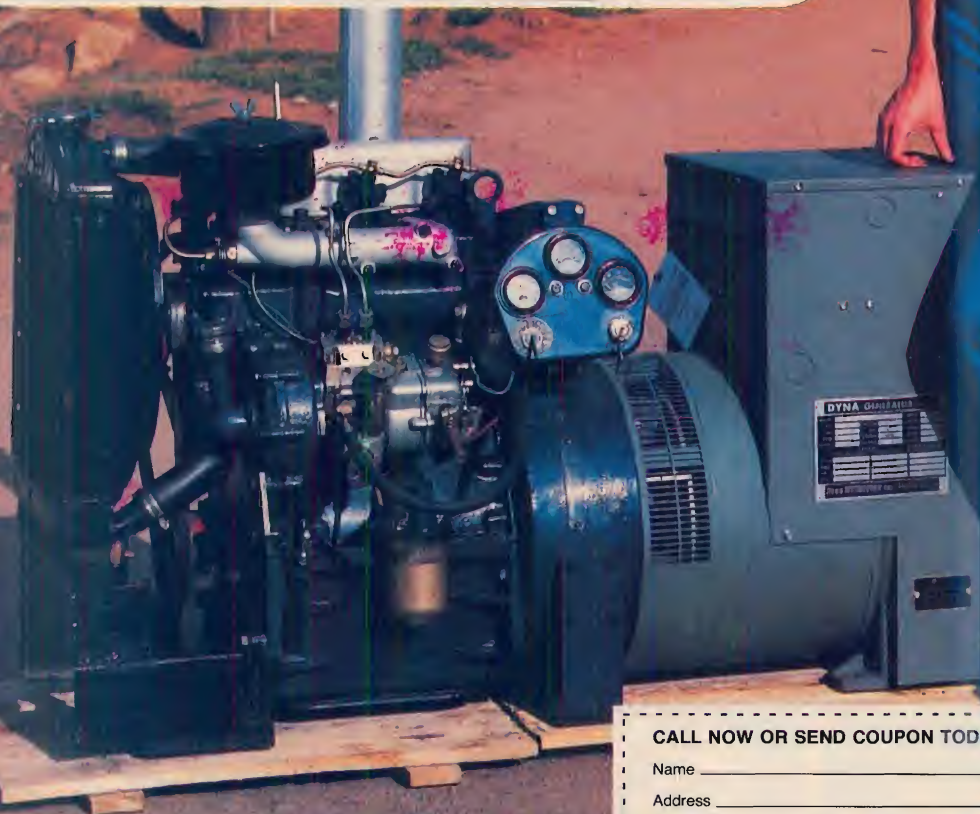


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